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Part III

Architectural and Transportation Barriers Compliance Board

Proposed Minimum Guidelines and Requirements for Standards for Accessibility and Usability of Federal and Federally Funded Buildings and Facilities by Physically Handicapped Persons

ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD

36 CFR Part 1190

Minimum Guidelines and Requirements for Accessible Design

AGENCY: Architectural and Transportation Barriers Compliance Board.

ACTION: Proposed rule.

SUMMARY: The Architectural and Transportation Barriers Compliance Board hereby issues its proposed minimum guidelines and requirements (guidelines) for standards for accessibility and usability of Federal and federally funded buildings and facilities by physically handicapped persons. These proposed guidelines are issued pursuant to the Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978, amending Rehabilitation Act of 1973. The proposed guidelines provide a basis for the issuance of consistent and improved accessibility and usability standards issued by other agencies under the Architectural Barriers Act of 1968.

DATES: Comments must be received on or before October 17, 1980.

ADDRESS: Send comments to: Charles Goldman, General Counsel, Rulemaking Docket 80–G1, ATBCB, Room 1010, 330 C Street, SW., Washington, D.C. 20202. Comments received will be available for public inspection in Room 1014 from 9 a.m. to 5:30 p.m., Monday through Friday. Copies of the Notice of Proposed Rulemaking (NPRM) and the draft regulatory analysis are available on tape for those with visual impairments. These may be obtained at the above address.

FOR FURTHER INFORMATION CONTACT: Charles Goldman, General Counsel, or Irene Bowen, Attorney (202)245–1801 (Voice or TDD); John Weber, Architect (202)472–3237 (Voice) (202)245–1801 (TDD).

SUPPLEMENTARY INFORMATION:

A. Background

The Architectural Barriers Act of 1968 (Barriers Act or ABA) (Pub. L. 90–480), as amended (42 U.S.C. 4151 *et seq.*), directs four Federal agencies to "prescribe standards for the design, construction, and alteration of (certain Federal and federally-assisted) buildings * * * to insure whenever possible that physically handicapped persons will have ready access to, and use of, such buildings." The four agencies, the General Services Administration (GSA), the Department of Housing and Urban Development (HUD), the Department of Defense (DoD), and the United States Postal Service (USPS), have issued standards. (GSA: 41 CFR 101–19.6, effective September 2, 1969; HUD: 24 CFR Part 40, effective September 24, 1969; DoD; DoD 4270.1–M, "Construction Criteria," June 1, 1978, paragraphs 5–6: USPS: Postal Contracting Manual, Publication 41, § 18–518.4, 39 CFR 601.100, as amended by handbook RE–4, November 1979.)

Section 502 of the Rehabilitation Act of 1973, Pub. L. 93–112, 29 U.S.C. 792, established the Architectural and Transportation Barriers Compliance Board (ATBCB or Board), an independent agency charged with insuring compliance with the standards.

The Board consists of the heads of ten Federal agencies plus eleven members appointed by the President from the general public.[1]

In November 1978, Congress enacted the Rehabilitation, Comprehensive Services and Developmental Disabilities Amendments of 1978, Pub. L. 95–602. The 1978 Act directs the Board to "establish minimum guidelines and requirements (guidelines) for the standards issued pursuant to the * * * Architectural Barriers Act" by the four agencies listed above. Agencies setting those standards under the Architectural Barriers Act will ultimately publish new standards after the Board adopts the guidelines.

On February 22, 1980, the Board published in the **Federal Register**, at 45 FR 12167, a Notice of Intent to Issue Proposed Rules. The Notice raised thirty-one important issues on which the Board sought public comment before publishing a Notice of Proposed Rulemaking. This Notice is the second step in the rulemaking process toward establishing these guidelines.

The Notice of Intent to Issue Proposed Rules recited the Board's efforts to compile technical information to aid in setting design specifications. Comments were elicited for 45 days on the key issues expected to be addressed in the guidelines.

The Board received one hundred seventeen comments from a cross-section of the public. Disabled persons and their advocacy organizations, universities, building industry orgnizations, Federal and State agencies commented. The Board is using those comments as noted in the preamble and the regulatory analysis as part of the basis of the proposed guidelines. The comments were considered in drafting the proposed guidelines. The comments received in response to the Notice of Intent are available for inspection at 330 C Street, SW., Room 1014, Washington, D.C. 20202 from 9 a.m. to 5:30 p.m., Monday through Friday.

Several of the comments received also highlighted the need for greater research, particularly with respect to accessibility features for communication impaired and visually impaired persons. (Questions 19–28 and 30 of the Notice of Intent) Further research in these areas, as well as others, such as fire doors, will complement the ATBCB's plan to review the guidelines on a regular basis and to incorporate state-of-the-art developments in a timely manner.

The ATBCB has a Technical Standards Committee, comprised of four public members and four Federal members (ABA standard-setting agencies): General Services Administration, United States Postal Service, Department of Housing and Urban Development, and Department of Defense. The Technical Standards Committee met with ATBCB staff for two days on three occasions after the public comment period closed. At these meetings, staff provided the Committee with detailed analyses of various aspects of the Architectural Barriers Act, the administrative rulemaking process, and the nature of the ATBCB minimum guidelines. The meetings were a forum for dialogue between staff and the Committee whereby guidance was given to the staff on the development of the minimum guidelines, including, as well, the indentification of issues to be highlighted for public comment. A detailed briefing of the full Board was conducted on the Committee's and staff's work. Copies of the minutes of all these meetings are available for inspection at ATBCB offices, 330 C Street, SW., Room 1014, Washington, D.C. 20202 from 9 a.m. to 5:30 p.m., Monday through Friday.

These guidelines are the first to be issued by the ATBCB. They contain provisions for the generic (common) elements and features of buildings and facilities. By providing specificity in the guidelines, the ATBCB anticipates that the Architectural Barriers Act standards based on the guidelines will readily permit architects, designers, engineers, users, and public officials to provide maximum accessibility and usability in buildings and facilities. The ATBCB views these guidelines as being the common core for the accessibility and

[1] The agency members are the heads of the Departments of Education; Transportation; Housing and Urban Development; Labor; Interior; Justice; Defense; General Services Administration; Veterans Administration; United States Postal Service. The Act requires at least five of the members from the general public to be physically handicapped.

usability standards enforced under Section 502 of the Rehabilitation Act. This would provide a Government-wide basis for a common understanding of accessibility.

These guidelines themselves do not require accessibility where not otherwise required by the Architectural Barriers Act, *e.g.*, only those residential units required under the Architectural Barriers Act to be accessible must be accessible to disabled persons.

In this connection, it must be noted that in the Notice of Intent, the ATBCB inquired at question 31 whether it should adopt the technical specifications of the "ASNI Standard," the 1979 revision to the American National Standards Institute (ANSI) A117.1 standard, or portions of it, as the basis for its guidelines. Although a number of the commentors thought the ATBCB should adopt the ANSI Standard or use it as a basis for the minimum guidelines, the ATBCB's need to develop the scope and other essential components of guidelines, required to make these guidelines the basis for enforceable standards, was also recognized.

In May 1980, subsequent to the issuance of the ATBCB Notice of Intent, ANSI, a private institute in New York City not connected with the Federal government, published its technical accessibility standard. The standard was reviewed as a possible basis for technical specifications in these guidelines.

However, an effective guideline must also contain scope provisions. The ATBCB wishes to publish a single document containing both scoping and technical provisions. This will facilitate use of the guidelines by the public, including consumers, designers, architects, engineers, and by the ATBCB as it exercises its statutory responsibilities to issue and update the guidelines.

To facilitate comments on the proposed guidelines, the ATBCB has identified each technical provision in the NPRM that is the same as the provision contained in the ANSI A117.1(1980) standard. In addition, the ATBCB has noted those provisions contained in the NPRM that are different from those in the ANSI standard and those that are contained in the NPRM but that are not addressed in the ANSI standard. The technical materials in these guidelines have been drawn from information in the public domain and government publications, whether as a result of the HUD-Syracuse University contract or from other federally sponsored research or State developed standards.

The ATBCB recognizes the inherent right of each of the standard-setting agencies under the Architectural Barriers Act to establish a unique format for the standards based upon the guidelines. Accordingly, the ATBCB has indicated in the general information subpart, § 1190.4(d), that agencies are at liberty to vary the format and that the ATBCB's concern is that the agencies' standards meet the substantive requirements of ATBCB minimum guidelines, regardless of the format of those standards. The ATBCB hopes agencies will follow the format of these guidelines to facilitate consistent compliance efforts.

B. Components

The guidelines are divided into five major components. The initial subpart, General, sets out the purpose, applicability, definitions, relationship of the guidelines to the Architectural Barriers Act standards, other uses, and effect of State or local law on the guidelines. The second subpart relates to processed departures from the guidelines, *i.e.*, waivers and modifications. Other departures from the guidelines are permitted under specific design exceptions. The third subpart enumerates the provisions applicable to new construction, alterations and leased buildings. The fourth subpart contains the pertinent technical provisions. The fifth subpart is reserved but will address special technical provisions applicable to unique elements or types of buildings, *e.g.*, stacks in libraries, hospitals, penal institutions, and residential structures.

The guidelines do not address the ATBCB's authority to ensure the accessibility of public conveyances, including rolling stock. The ATBCB believes any guidelines it may wish to publish on this subject should be considered as it more fully develops its transportation policy.

The ATBCB considered but has decided against including administrative compliance mechanisms at this time in these guidelines. The public should be aware that the ATBCB published Guidance for Compliance System Development in 1976. 41 FR 27191. The ATBCB considers development of a regulatory compliance system a high priority and will be expeditiously moving toward fulfilling that objective after these guidelines are completed. Pending development of a complete regulatory compliance system, the ATBCB will utilize its enforcement process, as well as its general oversight role concerning architectural barriers, to monitor implementation of the guidelines.

C. General Information: ABA Standards; Definitions

Subpart A states that the purpose of the guidelines is to establish a minimum basis for standards under the Architectural Barriers Act so that buildings and facilities subject to the Act can be made readily accessible to persons with disabilities. Section 1190.1.

All buildings and facilities subject to the ABA requirements are open to the public or have potential for employment or residence therein of disabled persons. Possible exceptions to this scope would be hazardous areas of a buildings or facility such as elevator penthouses or pits, and other mechanical areas. Section 11909.2.

As provided in § 1190.2 the guidelines are applicable to all types of buildings, regardless of their use or occupancy. The same technical specifications for new buildings should also apply to existing buildings to be leased by the United States. This is also true for federally-assisted buildings (questions 2, 3, and 12 of the Notice of Intent).

The definitions in the guidelines at § 1190.3 are most important. Close attention should be given these terms. Several of them, such as "equivalent facilitation," "exception," "modification," and "waiver" have never been defined in a public rulemaking process relating to the Architectural Barriers Act. These terms generated considerable discussion in the meetings of the Technical Standards Committee of the ATBCB.

Other particularly vital terms are "alteration," "buildings," "construction," "extraordinary repair" and "structural impracticability." The term "building" in the ABA was the subject of a May 8, 1980, Opinion of the Office of Legal Counsel, U.S. Department of Justice (OLC Opinion). That OLC Opinion held that the Architectural Barriers Act covers those federally-assisted buildings for which standards are authorized, even if they have not actually been imposed. The Architectural Barriers Act does not extend to buildings leased by recipients of Federal grants or loans , where funds were not made available for building, design, construction, or alteration. The OLC Opinion is available as part of the rulemaking docket at the ATBCB offices, 330 C Street, SW., Room 1014, Washington, D.C. 20202, from 9 a.m. to 5:30 p.m., Monday through Friday.

The definitions in the guidelines are intended to be consistent with the terms in revised 36 CFR Part 1150, previously mentioned and the subject of another rulemaking proceeding.

The guidelines provide that, unless otherwise specified, each of a particular building or facility element or feature is required to comply with the guidelines. Section 1190.6(b).

Question 29 of the Notice of Intent raised the issue of numbers. The majority of the comments were that a reasonable or appropriate number, with a minimum specified, should be provided. The ATBCB is concerned that people could reasonably interpret general phrases like "appropriate number" differently. Accordingly, as a general principle, full accessibility of a feature, space, or element is required. There are specific provisions authorizing less than all of a feature, space or element to be accessible.

The guidelines are written in the imperative mood to indicate the mandatory nature of the provisions and avoid excess verbiage and monotony by having to repeat the word "shall." Use of "shall" or the imperative mood means the provision is mandatory. Section 1190.6(c).

The standards issued by the agencies under the Architectural Barriers Act will be enforced by the ATBCB under 36 CFR Part 1150, Compliance with Standards, Access to and Use of Buildings by Handicapped Persons: Practice and Procedures for Compliance Hearings. Revisions to that regulation were recently proposed. 45 FR 28969. The revised regulation should be issued this year.

The ATBCB intends to enforce these minimum guidelines if a standard under the Architectural Barriers Act, complying with ATBCB guidelines, within 120 days after publication of the final guidelines. Final standards must be issued 120 days after the proposed standards are issued.

The ATBCB hopes that Federal and non-Federal entities will follow the Board's leadership and utilize the provisions of the guidelines as a tool to facilitate accessibility in buildings and facilities to which the Architectural Barriers Act does not apply. Section 1190.5. The obligation to comply with the guidelines is not affected by any State or local law. Section 1190.7. Nor should site conditions, as a general rule, preclude accessibility. Section 1190.8.

D. Waivers and Modifications: Processed Departures From the Guidelines

The Architectural Barriers Act authorizes the head of the standard-setting agency to modify the standards on a case-by-case basis upon application by the head of a department, agency, or instrumentality affected and a determination that such a waiver or modification is clearly necessary. 42 U.S.C. 4156. The 1978 Act authorized the ATBCB to ensure that all waivers are based upon findings of fact and are consistent with the Architectural Barriers Act and Section 502 of the Rehabilitation Act. Pub. L. 95–602, § 118.

It is the view of the ATBCB that the Architectural Barriers Act mandates the standard setting agencies to issue standards to ensure "whenever possible," that physically handicapped persons will have ready access to and use of, buildings and facilities, is a qualified requirement of full access, recognizing some necessarily rare exceptions. Waivers and modifications were not intended to be a major loophole in the requirement for accessibility. S. Rep. No. 538, 90th Cong., 1st. Sess. 4 (1967). In re Compliance Social Security Administration, Birmingham, Alabama (ATBCB Decision of Administrative Law Judge Feb. 1, 1979). OLC Opinion.

Several questions in the Notice of Intent (numbers 15–18) related to the concept of processed departures. Public comment generally supported the concept of waivers and modifications. The comments on question 15 and 16 of the Notice supported cost, practical difficulties, and safety/security as bases for waivers/modifications. These comments are embodied in the provision in § 1190.21. The definitions in § 1190.3 of "structural impracticability" and "equivalent facilitation" become increasingly important here as they are fundamental considerations in granting waivers/modifications.
Public comment differed on the types of criteria to be employed to determine when cost should be considered in the waiver/modification process.

Undue hardship may be the basis of a waiver or modification, *e.g.*, where there is little likelihood accessibility could be achieved without endangering or seriously weakening an existing building or facility or portion of it, or substantially altering an existing building or facility or portion of it.

In response to question 17 of the Notice of Intent, the consensus was that the factors enumerated should not be considered when granting a waiver or modification: type of business in the facility, potential number of disabled people who may visit or be employed in the facility, or nature of the disabilities of persons who may be employed in or visit the facility. The proposed guidelines adhere to this. Section 1190.22.

In discussing future departures from the guidelines and standards based thereon, the ATBCB realized that certain circumstances may merit additional thought by designers, builders, and implementing agencies. These are set forth as additional considerations for modifications in § 1190.23. The ATBCB is attempting to foster creative design by encouraging architects to be innovative, and, at the same time, provide greater accessibility. However, because of the limited experiences in barrier free design it is prudent to monitor such creative thought through the modification process involving new construction to ensure that requisite access is provided by the new techniques. Also, alteration projects are particularly susceptible to the need for modification of accessibility standards. In both circumstances equivalent facilitation must be clearly provided. Structural impracticability also may be considered. Where the accessibility standard can be departed from to provide more or improved access for disabled persons, a modification of the standard may be appropriate. The public must bear in mind that a modification, as defined in proposed § 1190.3, has the effect of maintaining the basic accessibility requirement.

In response to question 18 relating to the process for departures, a wide array of techniques was suggested, ranging from local hearings, to ATBCB review, to peer type review. The proposed guidelines provide for notice and documentation of all requests for waivers and modifications to the Executive Director of the ATBCB. The Executive Director would, within the time stated, indicate his/her comments on the prospective processed departure from a standard based on the guidelines. *See* § 1190.20. This approach is somewhat similar to that proposed in section 307 of S. 2080, the Public Buildings Act of 1980.

The Executive Director may seek review of a waiver or modification that is inappropriate under the mandate to ensure compliance with the accessibility standards. The alleged improper waiver/modification may be challenged under 36 CFR Part 1150. Section 1190.20.

E. Scope: New Construction; Additions; Alterations; Leases

The next subpart enumerates the provisions applicable to new construction, additions, alterations, and leased buildings. Note these provisions are applicable to Federal and federally-assisted buildings to the extent that such structures are subject to the ABA.

For the convenience of designers, specifiers, and the general public, and to follow the pattern of building code type documents, the scoping provisions are set forth in a single provision, subpart C, with paragraphs devoted to particular

requirements such as new construction, § 1190.31; additions, § 1190.32; alterations, § 1190.33; and leased buildings, § 1190.34. These sections contain the quantification and scoping provisions for the technical materials which follow in the next subpart. The two subparts should be read together.

Section 1190.31 contains provisions applicable to new construction. This list is, quite naturally, most extensive since it is easiest to provide accessibility in new structures.

In § 1190.32, the general rule is that if an addition to an existing building is constructed:

(a) The addition itself must comply with new construction standards;

(b) An accessible route must be provided from outside the building through the addition (if necessary, through the existing building);

(c) At least one of each existing building feature, element, or space, *e.g.*, cafeteria, snack bar, library, lounge, must be made accessible, unless one of that feature is accessible in the addition; and

(d) common areas must be made accessible as in (c).

Section 1190.33 relates to the scope of what is required with respect to alterations. Note that all work to an existing building that presents the opportunity to provide increased accessibility, no matter how described, *e.g.*, rehabilitation, renovation, is considered to be an alteration and is subject to the accessibility requirement guidelines. This was strongly supported in public comment on question 5 of the Notice of Intent.

If an element of a building is altered, only that element must be made accessible. For example, if toilet room lavatories are altered, the new lavatories must be accessbile. However, if alternations of single elements, when considered together, became an alteration of a portion of a building, the entire portion must be made accessible. For example, if a number of water closets, lavatories, and toilet accessories in a toilet room are altered, then the toilet room as a whole must be made accessible; or on a larger scale, if all of the rooms of a wing of a building are altered, then the wing must be made accessible. These principles are responsive to public comment on questions 7, 8 and 9 of the Notice of Intent. Section 1190.33.

In certain instances what appears to be "alteration" may be so extensive that it will be classified as "new" construction, thereby necessitating the entire building to be accessible and usable. Section 1190.33. Compare § 1190.31. This occurs when (1) 50 percent or more of the gross floor area is altered or (2) the cost of alteration is 50 percent or more of the full and fair cash value of the building.

In new buildings, all entrances must be accessible. With alterations to existing buildings, the rules are slightly different. Where 50 percent or more of a building is altered, so that the alteration is classified as new construction; at least one entrance, as well as any entrance altered, must be accessible. In any event, whether or not 50 percent of the building is altered, an entrance must be made accessible if any alteration work is performed on that entrance. This is responsive to the comments on question 10 of the Notice of Intent.

Question 11 of the Notice of Intent addressed the issue of vertical access. In §§ 1190.32 and 1190.33 an accessible means of vertical access must be provided for alterations where

(a) Stairs are altered, installed or replaced; or

(b) Power-driven vertical access equipment, *e.g.*, and escalator, is altered, installed, or replaced; or

(c) A floor is added to a building.

In response to question 11 of the Notice of Intent, one-third of the comments favored an elevator being required in all instances cited in the Notice. The remaining two-thirds were mixed, defying simplistic classification.

The ATBCB is not prohibiting the installation of escalators. Rather, where escalators are installed, elevators must also be provided. *See* § 1190.31(f). Only passenger, not freight or service, elevators would be in compliance with the guidelines.

The provisions of the guidelines applicable to leased space are the same as those applicable to federally-owned buildings. In response to its inquiry about balancing the need for accessible space with the fact that accessible space may not be available (question 12 of the Notice of Intent), the ATBCB received comments which were divided on the adequacy of the current GSA approach, which permits awarding of a lease requiring certain enumerated accessibility features. 41 CFR 101–19.604(e), 43 FR 16478, 16480. Many commenters felt that the exception permitted in the leasing process had in essence become the rule, rather than full accessibility actually currently required for initial lease solicitation. The ATBCB recognizes that full accessibility may not always be available in leased buildings. However, the ATBCB believes that the waiver/modification process can address these instances. Section 1190.34. This is more than GSA currently requires in its regulation relating to review of leasing inaccessible sites.

Section 1190.34 requires, consistent with the public comment on question 13 of the Notice of Intent, that an accessible route be provided from the entrance to the leased portion and essential features of the building. This includes the essential building support functions such as the elevator, toilet rooms, and primary entrances, which are located in the leased portion of the building, even if not physically occupied by a Federal agency.

Question 14 of the Notice of Intent inquired about making the common areas of leased buildings accessible. Where such common areas may be justified under 41 CFR Chapter 101 as an essential, valid space requirement, such areas may be required to be accessible. There are, however, other statutes which limit the amount the Government may pay to improve a lessor's property. *See* 40 U.S.C. 278(a), which limits the amount of improvement to 25 percent of the rent for the first year of the lease. This may limit the amount of accessibility in leased space. Also, the lessor may have already leased the common area to another party, *e.g.*, concessionaire for store or cafeteria. Thus, while public comment supported making these areas accessible, there may be very practical problems in terms of justifying the Government's need for this space and/or necessitating a processed departure from the guidelines. These limitations are reflective of the requirement that the standards are applicable to ensure accessibility "whenever possible," *e.g.*, 42 U.S.C. 4152, 4154(a).

When the Government leases an entire building it may be said to require access to and, in fact, control the common areas. Leases of entire structures pose fewer problems in recognizing the need for access to common features as the Government controls the entire building. An example of a bona fide need for access to a common area in a building the Government did not lease completely would be the need for access to a cafeteria in a remotely located structure.

F. Accessibility Specifics

The detailed technical provisions of the guidelines are contained in the fourth subpart. Provisions are made under 21 separate major headings. The technical provisions are contained in Subpart D. Different technical provisions are assigned specific sections. This is for the convenience of designers, specifiers, and the general public and to follow the pattern or building code documents.

There are several issues on which comments were received which the

ATBCB wishes to address. These relate to provisions for communication impaired persons, questions 19–23 of the Notice, and visually-impaired persons, questions 24–28 of the Notice. The public comment on question 19 of the Notice of Intent supported flashing lights as the best way to inform deaf and hearing impaired persons in case of an emergency. This is embodied in § 1190.180, Alarms.

The public comment on question 23 of the Notice of Intent supported use of the latest technology to eliminate barriers. This will be an area of future research also identified by question 30 of the Notice. In these guidelines signage requirements are included. Section 1190.200.

In responding to questions 24–28, which raised issues relating to the provision of accessibility for visually impaired persons, public comment supported the provision of tactile signage and tactile door handles, as well as warnings at railings or walls surrounding openings. *See* § 1190.190.

The responses also seemed to support the use of contrasting colors as a directional cue for visually impaired persons. However, before mandating this, the ATBCB wants to research this subject further. *See* § 1190.200(b)(3).

In considering the issue of signage/identification there was also discussion concerning utilization of specific shapes to identify particular functions of a building, *e.g.*, triangles to identify ladies' restrooms. This may also be the subject of further research.

The subject of telephones and communication barriers elicited considerable comments. Public comment in response to question 20 of the Notice of Intent was overwhelmingly in favor of requiring TDDs. Concern was raised, however, that the ATBCB seek to ensure that such a requirement, if imposed, can be done practically and will not be frustrated by vandalism.

Public comment strongly supported the policy that telephones should be compatible with hearing aids (questions 20 and 22). This is within § 1190.210 and it is proposed that all public telephones will be so compatible. The ATBCB understands that the cost of such compatibility is minimal.

Comment on question 20 also supported requiring at least one public telephone per bank or that a stated percentage (but at least 1) be equipped with amplifiers. *See* § 1190.210(d).

Question 22 of the Notice of Intent elicited strong public support to require telephones receiving incoming calls from the public be equipped with TDDs. However, upon analysis of the Architectural Barriers Act, ATBCB staff concluded that such a requirement, while it may be an appropriate public policy, is not a component of the design, construction, or alteration of a building or facility. The ATBCB believes that under either Section 501 or 504 of the Rehabilitation Act, 29 U.S.C. 791, 794, such TDDs can be required.

G. Special Technical Provisions

The next subpart, "Special Buildings or Facility Elements," will be developed in future rulemaking. ATBCB expects to interact with the Federal agencies having expertise to develop more specific guidelines for the unique aspects of structures, *e.g.*, with the Department of the Interior on guidelines for accessible parks, the Department of Health and Human Services and Veterans Administration for hospitals, the Department of Housing and Urban Development for residential units.

H. Requests for Comments; Highlighted Issues

The ATBCB is interested in receiving comments on all aspects of the proposed guidelines from all interested parties. The ATBCB is concerned that the provisions are understandable and lead to clear and enforceable standards and accessible buildings in a most effective manner.

The ATBCB in inviting public comment on the proposed guidelines, wishes to highlight certain issues for comment. These issues are set forth below.

(1) Number. While § 1190.6(b) states the general principle that when a number of building elements is provided *each* must be accessible, the guidelines do make certain exceptions which should be examined. *See also* Subpart C.

(a) For example, should the guidelines require that in new buildings all or a lesser number, such as 2, of the entrances (including the principal entrance) should be accessible? Should the number be less when there is a replacement or renovation project involving existing entrances? Section 1190.120.

(b) Under § 1190.150 should all toilet facilities provided in a toilet room be required to be accessible or should the guidelines (and thus the Architectural Barriers Act standards) require only one toilet unit per toilet room be accessible?

(c) What number of parking spaces should be specified by the guidelines for disabled persons? *See* § 1190.60 specifying a percentage and minimum of one space.

(d) In § 1190.210, the guidelines provide that at least one telephone per bank must be equipped with telecommunications devices for the deaf (TDDs). Is that number reasonable?

(e) A related inquiry is how many telephones should be required to have amplifiers. Should the general rule be one per bank with additional requirements for special use buildings such as airports?

(f) and (g) Two other sections, 1190.220 and 1190.230, also contain deviations from the all of a building element rule. In § 1190.220 a percentage of seating spaces has been indicated. Under § 1190.230 a limited number of viewing positions are to be provided based on the capacity of assembly area. Public comment is invited on the reasonableness and adequacy of these provisions of the guidelines.

(2) Alterations. Section 1190.33.

(a) Public comment is invited on the "50 percent criteria"—floor space or full and fair cash value—for treating significant alterations as new construction and thus requiring full access throughout the entire structure.

(b) The ATBCB also highlights the question of whether it should, as a matter of policy, require an accessible means of vertical access where an escalator is contemplated to replace an existing escalator.

(3) Parking. A fundamental question for comment is whether the guidelines should require the standards based upon it to require parking for disabled persons when the Government builds, leases, or funds a building. *See* § 1190.31(b), § 1190.32, § 1190.33(c)(5), and § 1190.34.

(4) Tactile Warnings. Sections 1190.31(o)(2), 1190.70(e)(7), and 1190.190(c)(1) provide for tactile warnings at the edges of streets without curbs, guardrails, planted areas or similar boundary elements. Should this requirement include tactile warnings at curb ramps and vehicular ways? Is this practical or will it cause additional problems?

(5) Hospital Doors. In § 1190.130(c)(4)(i) alternate specifications for front entry doors in acute care hospital patient rooms are provided. These doors are not unattended so independent access is not the issue. The question is whether the latch side clearances should be 1'–6" inches or 2'–0".

(6) Toilet Facilities.

(a) The additional inquiry here is whether the standard should be the same for new and alteration work.

(b) The public should also comment on whether unisex toilets should be permitted (including any qualifications on where, such as at airports or other high use buildings where a disabled person might be accompanied). *See* § 1190.150(a).

(7) Signage/Identification. The public is invited to share its experience with contrasting colors and specific shapes to identify particualr functions. Should these provisions be mandatory in the final guidelines? *See* § 1190.200(b).

(8) Telephones.

(a) The public support for TDDs on public telephones was quite strong. The inquiry is, what is the most effective place for a TDD, an open or a controlled environment? The ATBCB is seeking to ensure that any requirement it may impose can be implemented in a practical manner.

(b) In developing the guidelines' provision relating to telephones, concern was expressed as to the maximum height of the top of the usable or operable part of the telephone. If the part, usually the coin slot, is too high, disabled persons are unable to reach it and thus unable to use the telephone. The guidelines provide that the top of the highest operable part of telephones shall be no higher than 4'–0". The ATBCB is particularly concerned that all of the public be afforded the opportunity to utilize public telephones. ATBCB highlights this provision and invites public comment specifically on the maximum height of the operable parts of telephones.

(9) Historic Buildings. Question 16(d) of the Notice of Intent raised the issue of historic features being a basis for special treatment. The public comment in general recognized the potential need for some (but not blanket) waivers/exceptions. The ATBCB plans to look more closely at this issue, working with the Department of Interior, and examining such concepts as "adaptive use" and "restoration" when evaluated in connection with accessibility. Public comment is invited on the ATBCB's general approach as well as how it plans to address historic buildings.

I. Draft Regulatory Analysis

A draft of a regulatory analysis has been prepared voluntarily. The draft is being published along with the proposed guidelines as Appendix A to this document. A final regulatory analysis will be will be issued at the time the final rule is published. Comments are invited on the draft regulatory analysis.

J. The National Environmental Policy Act

A negative environment declaration, prepared pursuant to the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4332) indicates that the issuance of the minimum guidelines will not have any significant adverse impact on the environment. This document is in the public docket for the guidelines and is available for examination by interested persons during the comment period.

In consideration of the foregoing, it is porposed to add Part 1190 to Title 36 of the code of Federal Regulations to read as set forth below:

The proposed Guidelines are issued under 29 U.S.C. 792 section 502 of the Rehabilitation Act of 1973, as amended.

By vote of the Board, July 18, 1980.

Dated: July 18, 1980.

Max Cleland,

Chairperson, Architectural and Transportation Barriers Compliance Board.

PART 1190—MINIMUM GUIDELINES AND REQUIREMENTS FOR ACCESSIBLE DESIGN

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Authority: Sec. 502(b)(7), Rehabilitation Act of 1973 (29 U.S.C. 792(b)(7), as amended by the Rehabilitation, Comprehensive Services, and Developmental Disabilities Amendments of 1978 (Pub. L. 95–602).

Subpart A—General

§ 1190.1 Purpose.

The purpose of this part is to implement section 502(b)(7) of the Rehabilitation Act of 1973 (29 U.S.C. 792(b)(7)), as amended, which requires the Architectural and Transportation Barriers Compliance Board to establish minimum guidelines and requirements for standards issued under the Architectural Barriers Act of 1968 (42 U.S.C. 4151 *et seq.*), as amended. This part and the standards to be based on it are intended to ensure that certain buildings and facilities financed with Federal funds are so designed, constructed, or altered as to be readily accessible to, and usable by, physically handicapped persons. (This section not in ANSI A117.1 (1980).)

§ 1190.2 Applicability: Buildings and facilities subject to guidelines and standards.

(a) *Definitions.* As used in this section, the term:

(1) "Constructed or altered on behalf of the United States" means acquired by the United States through lease-purchase arrangement, constructed or altered for purchase by the United States, or constructed or altered for the use of the United States.

(2) "Primarily for use by able-bodied military personnel" means expected to be occupied, used, or visited principally by military service personnel. Examples of buildings so intended are barracks, officers' quarters, and closed messes.

(3) "Privately owned residential structure" means a single or multi-family dwelling not owned by a unit or subunit of Federal, state, or local government.

(b) *Buildings and facilities covered.* Except as provided in paragraph (c) of this section, this guideline, and the standards to be issued by the standard-setting agencies to conform to it, apply to any building or facility—

(1) The intended use for which either—

(i) Will require that such building or facility be accessible to the public, or

(ii) May result in employment or residence therein of physically handicapped persons; and

(2) Which is—

(i) To be constructed or altered by or on behalf of the United States;

(ii) To be leased in whole or in part by the United States—

(A) After August 12, 1968, and before January 1, 1977, after construction or alteration in accordance with plans and specifications of the United States; or

(B) On or after January 1, 1977, including any renewal of a lease entered into before January 1, 1977, which renewal is on or after such date;

(iii) To be financed in whole or in part by a grant or loan made by the United States after August 12, 1968, if the building or facility may be subject to standards for design, construction, or alteration issued under the law authorizing the grant or loan; or

(iv) To be constructed under the authority of the National Capital Transportation Act of 1960, the National Capital Transportation Act of 1965, or Title III of the Washington Metropolitan Area Transit Regulation Compact.

(c) *Buildings and facilities not covered.* The guidelines and standards do not apply to—

(1) Any privately owned residential structure, unless it is leased by the Federal government on or after January 1, 1977, for subsidized housing programs; or

(2) Any building or facility on a military installation designed and constructed primarily for use by military personnel.

(d) Any covered building or facility, as provided in this section, which is designed, constructed, altered, or leased after the effective date of a standard issued under this guideline which is applicable to the building or facility, shall be designed, constructed, altered, or leased in accordance with the standard. For purposes of this section, any design, construction, alteration or lease for which bids or offers are received before the effective date of the applicable standards, in response to an invitation for bids or requests for proposals, is not subject to the standard. (This section is not in ANSI A117.1 (1980).)

§ 1190.3 Definitions.

As used in this part, the term:

"ATBCB" means the Architectural and Transportation Barriers Compliance Board. (This definition is not found in ANSI A117.1 (1980).)

"Access aisle" means a pedestrian space between elements such as parking spaces, seating, and desks. (This definition is different from the one found in ANSI A117.1 (1980).)

"Accessible" means complying with the specifications and requirements of this part and with any applicable standard issued by a standard-setting agency. (This definition is different from the one found in ANSI A117.1 (1980).)

"Accessible route" means a continuous unobstructed path connecting accessible elements and spaces in a building or facility and complying with the space and reach requirements of this part. (Interior-accessible routes may include but are not limited to corridors, floors, ramps, elevators, lifts, and clear floor space at fixtures. Exterior accessible routes may include but are not limited to parking access aisles, curb ramps, walks, ramps, and lifts.) (This definition is similar to the one in ANSI A117.1 (1980).)

"Accessible space" means a space that complies with this part. (This definition is not found in ANSI A117.1 (1980).)

"Addition" means an expansion, extension, or increase in the gross floor area of a building or facility. (This definition is not found in ANSI A117.1 (1980).)

"Agency" means a Federal department, agency or instrumentality, as defined in sections 551(1) and 701(b)(1) of Title 5, United States Code, or an official athorized to represent an agency. (This definition is not found in ANSI A117.1 (1980).)

"Alternation" means any change in a building or facility or its permanent fixtures or equipment. It includes, but is not limited to, remodeling, renovation, rehabilitation, reconstruction, changes or rearrangement in structural parts, and extraordinary repairs. It does not include normal maintenance, reroofing, interior decoration, or changes to mechanical systems. (This definition is not found in ANSI A117.1 (1980).)

"Architectural Barriers Act" means the Architectural Barriers Act of 1968, Pub. L. 90–480, as amended, 42 U.S.C. 4151 *et seq.* (This definition is not found in ANSI A117.1 (1980).)

"Automatic door" means a door—

(a) Used for human passage and

(b) Equipped with a power-operated mechanism and controls that open and close the door upon receipt of a momentary actuating signal. (This definition is similar to the one in ANSI A117.1 (1980).)

"Building or facility" means all or any portion of buildings, structures, equipment, roads, walks, parking lots, parks, sites, or other real property or interest in such property. (This definition is not found in ANSI A117.1 (1980).)

"Common areas" means those interior and exterior spaces available for use by all occupants and users of a building or facility, exclusive of any spaces that are made available for the use of a restricted group of people or the use of which is restricted to particular functions. (This definition is not found in ANSI A117.1 (1980).)

"Construction" means any erection of a new building or of an addition to an existing building. (This definition is not found in ANSI A117.1 (1980).)

"Cross slope" means the incline that is perpendicular to the direction of travel (see "running slope"). (This definition is similar to the one in ANSI A117.1 (1980).)

"Curb ramp" means a short ramp cutting through a curb or built up to it. (This definition is similar to the one in ANSI A117.1 (1980).)

"Disability" means any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following bodily systems: Neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genito-urinary; hemic and lymphatic; skin; and endocrine. (This definition is different from the one found in ANSI A117.1 (1980).)

"Egress" or "means of egress" means a continuous and unobstructed way of exit travel from any point in a building or facility to an exterior walk or out of a fire zone. It includes all intervening rooms, spaces, or elements. (This definition is similar to the one in ANSI A117.1 (1980).)

"Element" means an architectural or mechanical component of a building, facility, space, or site, *e.g.*, telephone, curb ramp, door, drinking fountain, seating, water closet. (This definition is not found in ANSI A117.1 (1980).)

"Equivalent facilitation" means access or use which is, in terms of performance, dignity, convenience, and independence, at least substantially equal to or better than that required under the guideline or a standard. (This definition is not found in ANSI A117.1 (1980).)

"Essential features" means those elements and spaces that make a building or facility usable by, or serve the needs of, its occupants or users. Essential features include but are not limited to entrances, toilet rooms, and accessible routes. Essential features do not include those spaces that house the major activities for which the building or facility is intended, such as classrooms and offices. (This definition is not found in ANSI A117.1 (1980).)

"Exception" means a special provision in this part or in a standard which indicates an acceptable alternative, under specified circumstances, to a requirement stated directly above the exception. (This definition is not found in ANSI A117.1 (1980).)

"Exectutive Director" means the Executive Director of the ATBCB. (This definition is not found in ANSI A117.1 (1980).)

"Extraordinary repair" means the replacement or renewal of any element of an existing building or facility for purposes other than normal maintenance. (This definition is not found in ANSI A117.1 (1980).)

"Full and fair cash value" means—

(a) The assessed valuation of a building or facility as recorded in the assessor's office of the municipality and as equalized at one hundred percent (100%) valuation; or

(b) If there is no assessed value—

(1) In the case of a building or facility constructed and/or owned by a unit of Federal, State, or local government, the replacement cost; or

(2) In the case of any other building or facility, the fair market value.

Note.—The one hundred percent (100%) equalized assessed value shall be based upon the State's most recent determination of the particular city's or town's assessment ratio. Example: Town X has an assessment ratio of forty percent (40%), and the particular building in question is assessed at $200,000.00. To determine the equalized assessed value of this building, divide $200,000.00 by .40, and the equalized assessed value equals $500,000.00.

(This definition is not found in ANSI A117.1 (1980).)

"Guidelines" means this part. (This definition is not found in ANSI A117.1 (1980).)

"Modification" means an official act in accordance with the provisions of the Architectural Barriers Act to permit design, construction, alteration, or lease of a building without strict compliance with a particular provision of a guideline or standard. (This definition is not found in ANSI A117.1 (1980).)

"Operable part" means a part of equipment or an appliance used to insert or withdraw objects, to activate or deactivate equipment, or to adjust the equipment (*e.g.*, coin slot, push button, handle). (This definition is similar to the one in ANSI A117.1 (1980).)

"Physically handicapped person" means any person who has a disability which substantially limits one or more major life activity, including but not limited to such functions as performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working. (This definition is different from the one found in ANSI A117.1 (1980).)

"Power-assisted door" means a door—

(a) Used for human passage; and

(b) With a mechanism that helps to open the door, or relieve the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself. (This definition is different from the one found in ANSI A117.1 (1980).)

"Principal entrance" means a main entrance to a building or facility. (This definition is similar to the one in ANSI A117.1 (1980).)

"Ramp" means a walking surface that has a running slope greater than 1:20. (This definition is similar to the one in ANSI A117.1 (1980).)

"Running slope" means the slope that is parallel to the direction of travel (see "cross slope"). (This definition is similar to the one in ANSI A117.1 (1980).)

"Section 502 of the Rehabilitation Act" or "Section 502" means Section 502 of the Rehabilitation Act of 1973, Pub. L. 93–112, 29 U.S.C. 792, as amended. (This definition is not found in ANSI A117.1 (1980).)

"Shall" denotes a mandatory requirement. (This definition is similar to the one in ANSI A117.1 (1980).)

"Signage" means the display of written, symbolic, tactile, or pictorial information. (This definition is similar to the one in ANSI A117.1 (1980).)

"Site" means a parcel of land bounded by a property line or a designated portion of a public right-of-way. (This definition is similar to the one in ANSI A117.1 (1980).)

"Site improvements" means landscaping, paving for pedestrian and vehicular ways, outdoor lighting, recreational facilities, and similar site additions. (This definition is similar to the one in ANSI A117.1 (1980).)

"Space" means a definable area, *e.g.*, toilet room, hall, assembly area, parking area, entrance, storage room, alcove, courtyard, or lobby. (This definition is not found in ANSI A117.1 (1980).)

"Standard" means any standard for accessibility issued under the Architectural Barriers Act. (This definition is not found in ANSI A117.1 (1980).)

"Standard-setting agency" means one of the four agencies required to issue standards under the Architectural Barriers Act, *i.e.*, the General Services Administration, the Department of Housing and Urban Development, the Department of Defense, and the United States Postal Service. (This definition is not found in ANSI A117.1 (1980).)

"Structural impracticability" means having little likelihood of being accomplished without removing or altering a load-bearing structural member at an increased cost of 50 percent or more of the value of the element of the building or facility involved. (This definition is not found in ANSI A117.1 (1980).)

"Tactile" means perceptible through the sense of touch. (This definition is similar to the one in ANSI A117.1 (1980).)

"Tactile warning" means a surface texture applied to or built into walking surfaces or other elements to warn visually impaired persons of hazards in the path of travel. (This definition is similar to the one in ANSI A117.1 (1980).)

"Waiver" means an official act in accordance with the Architectural Barriers Act to—

(a) Exempt an entire building or facility from one or more requirements of a standard; or

(b) Exempt an entire building or facility, or any portion of a building or facility, from the requirements of a standard with respect to a specific element or space. (This definition is not found in ANSI A117.1 (1980).)

"Walk" means an exterior pathway or space with a prepared surface intended for pedestrian use and having a slope of 1:20 or less. It includes general pedestrian areas such as plazas and courts. (This definition is similar to the one in ANSI A117.1 (1980).)

§ 1190.4 Issuance of Architectural Barriers Act standards by standard-setting agencies.

(a) These guidelines are the minimum requirements for standards issued under the Architectural Barriers Act by the Administrator of General Services, Secretary of Housing and Urban Development, Secretary of Defense, and Postmaster General.

(b) Each standard-setting agency shall issue proposed standards under the Architectural Barriers Act for public comment within 120 days after the publication of this guideline. Each standard-setting agency shall issue final standards under the Architectural Barriers Act in compliance with these guidelines with 120 days after the publication of the proposed standards.

(c) Standards which conform to or exceed the provisions of the guidelines shall be deemed in compliance with the guidelines.

(d) Each standard-setting agency is encouraged to issue standards which follow the format of these guidelines. However, standards which differ in format from these guidelines but are

otherwise consistent with the guidelines shall be deemed in compliance with these guidelines.

(e) If a standard-setting agency does not issue standards within 240 days after the publication of this guideline, or if any standard-setting agency issues standards which do not comply with the guidelines, the guidelines shall be enforced as that agency's standards, under 36 CFR Part 1150, Compliance with Standards for Access to and Use of Buildings by Handicapped Persons; Practice and Procedures for Compliance Hearings. (This section is not in ANSI A117.1 (1980).)

§ 1190.5 Guidelines: Other uses.

The guidelines may be used by other governmental and nongovernmental entities to make buildings and facilities accessible to, and usable by, physically handicapped persons. (ANSI A117.1 (1980) has a similar provision.)

§ 1190.6 Interpretation of guidelines.

(a) These guidelines shall be liberally construed to carry out the purposes and provisions of the Architectural Barriers Act and Section 502 of the Rehabilitation Act.

(b) Words importing the singular number may extend and be applied to the plural and vice versa. However, unless otherwise specified in the guidelines, each element or space of a particular building or facility shall comply with the guidelines.

(c) Use of the imperative mood, *e.g.*, "provide," means the provision is mandatory. This form is being used to avoid wordiness and monotony but means the same as if the word "shall" had been included. (This section is not in ANSI A117.1 (1980).)

§ 1190.7 Effect of State or local law.

The obligation to comply with this part is not affected by any State or local law. (This section is not in ANSI A117.1 (1980).)

§ 1190.8 Site conditions.

These guidelines are not intended to discourage development of buildings and facilities on sites with extreme conditions, *e.g.*, on slopes, and where full accessibility might be difficult. However, site conditions shall not be used as a justification for noncompliance with this guideline or a standard, except as provided in Subpart B. (This section is not in ANSI A117.1 (1980).)

§ 1190.9 Severability.

If any section, subsection, paragraph, sentence, clause, or phrase of these guidelines is declared invalid for any reason, the remaining portions of these guidelines that are severable from the invalid part shall remain in full force and effect. If a part of these guidelines is invalid in one or more of its applications, the part shall remain in effect in all valid applications that are severable from the invalid applications. (This section is not in ANSI A117.1 (1980).)

Subpart B—Waivers and modifications: Processed departures (This subpart is not in ANSI A117.1 (1980).)

§ 1190.20 Procedures.

(a) The head of a standard-setting agency may issue a waiver or modification on a case-by-case basis with respect to a standard issued by that standard-setting agency if—

(1) The head of the agency concerned applies in writing to the head of the standard-setting agency; and

(2) The head of the standard-setting agency—

(i) Provides complete documentation to the Executive Director concerning the application; and

(ii) Provides the Executive Director 20 calendar days from receipt of the documentation in which to comment in writing to the head of the standard-setting agency; and

(3) The head of the standard-setting agency makes a written finding of facts and a written determination that the modification or waiver is clearly necessary.

(b) Nothing in these guidelines shall preclude the Executive Director from instituting compliance procedures under 36 CFR Part 1150 alleging that a waiver or modification is not based upon findings of fact or is inconsistent with the Architectural Barriers Act and Section 502 of the Rehabilitation Act.

§ 1190.21 Factors on which a waiver or modification may be based.

Factors which may be the basis of determination that a waiver or modification is clearly necessary include, but are not limited to, the following:

(a) Safety or Security;

(b) Undue hardship (including such considerations as time, cost, and substantial compliance), where it is clearly evident that a method substituting for a method required by the standard will provide equivalent facilitation;

(c) Limitations imposed by legislation other than the Architectural Barriers Act and Section 502; or

(d) Structural impracticability.

§ 1190.22 Factors on which a waiver or modification may not be based.

A head of a standard-setting agency may not base a waiver or modification on any of the following factors:

(a) Type of occupancy, usage, or business conducted in the building or facility;

(b) Potential number of physically handicapped persons who may be employed in, reside in, or visit the building or facility;

(c) Nature of the disabilities of the persons who may be employed in, reside in, or visit the facility.

§ 1190.23 Modifications: Additional requirements.

A head of a standard-setting agency may grant a modification only if—

(a) Application of the standard would be structurally impracticable;

(b) Improved access or a greater degree of access is provided;

(c) With respect to alteration of an existing building or facility, it is clearly evident that equivalent facilitation is provided; or

(d) With respect to new construction, the head of the standard-setting agency finds that:

(1) An innovative method is proposed to be substituted for a method required by the standard; and

(2) The innovative method can reasonably be expected to provide equivalent facilitation.

Subpart C—Scope

§ 1190.30 Scope. [Reserved]

§ 1190.31 Accessible buildings and facilities: New construction.

Except as otherwise provided in § 1190.50, all new construction of buildings and facilities shall comply with the following minimum requirements:

(a) *Accessible route.* At least one accessible route shall comply with § 1190.50, Walks, Floors, and Accessible Routes, and shall connect an accessible building entrance with:

(1) Transportation facilities located within the property line of a given site, including passenger loading zones, public transportation facilities, taxi stands, and parking;

(2) Public streets and sidewalks;

(3) Other accessible buildings, facilities, elements, and spaces that are on the same site; and

(4) All accessible spaces, rooms, and elements within the building or facility. (ANSI A117.1 (1980) has a similar paragraph.)

(b) *Parking and passenger loading zones:* If any parking is provided, for employees or visitors, or both, each such

parking area shall comply with § 1190.60, Parking and Passenger Loading Zones, and the following table:

Total parking in lot	Required minimum number of accessible spaces
1 to 25	1.
26 to 50	2.
51 to 75	3.
75 to 100	4.
76 to 150	5.
151 to 200	6.
201 to 300	7.
301 to 400	8.
401 to 500	9.
501 to 1,000	2 percent of total.
Over 1,000	20 plus 1 for each 100 over 1,000.

(This paragraph is different from the one in ANSI A117.1 (1980).)

If passenger loading zones are provided, at least one passenger loading zone shall comply with § 1190.60, Parking and Passenger Loading Zones. [This paragraph is similar to the one in ANSI A117.1 (1980.)]

(c) *Ramps and Curb Ramps.* If there is an abrupt level or grade change, if the slope is greater than 1:20, and if no other means of accessible vertical access is provided, a ramp or curb ramp shall be provided. If a ramp or curb ramp is provided, it shall comply with § 1190.70, Ramps and Curb Ramps. [This paragraph is similar to the one in ANSI A117.1 (1980).]

(d) *Stairs.* Except as provided in paragraph 1190.30(f)(1), stairs connecting levels that are not connected by an elevator shall comply with § 1190.80, *Stairs.* (This paragraph is similar to the one in ANSI A117.1 (1980).)

(e) *Handrails:* Handrails shall be provided at each ramp and staircase as required in § 1190.70, Ramps and Curb Ramps, and § 1190.80, Stairs, respectively, and shall comply with § 1190.90, Handrails. (This paragraph is similar to the one in ANSI A117.1 (1980).)

(e) *Elevators.* One passenger elevator complying with § 1190.100, Elevators, shall serve each level in all multi-story buildings and facilities. If more than one elevator is provided, each elevator shall comply with § 1190.100, Elevators. (This provision is different from ANSI A117.1 (1980).)

(1) *Exception.* Elevator pits, elevator penthouses, mechanical rooms, piping, or equipment catwalks are excepted from this requirement. (This provision is different from ANSI A117.1 (1980).)

(2) *Exception.* Ramps or platform lifts complying with § 1190.70, Ramps and Curb Ramps, and § 1190.110, Platform Lifts, respectively, may be used in lieu of an elevator. (This provision is not in ANSI A117.1 (1980).)

(g) *Platform lifts.* If the slope is greater than 1:20, and if no other means of accessible vertical access is provided, a platform lift may be provided if there is an abrupt level or grade change. If a platform lift is provided, it shall comply with § 1190.110, Platform Lifts. (This provision is different from ANSI A117.1 (1980).)

(h) *Entrances.* Each entrance to a building or facility shall comply with § 1190.120 Entrances. (This provision is different from ANSI A117.1 (1980).)

(i) *Doors.* Each door shall comply with § 1190.130, Doors. (This provision is different from ANSI A117.1 (1980).)

(j) *Windows.* If windows are intended for occupant operation, at least one window in each accessible space shall comply with § 1190.140, Windows. (This provision is different from ANSI A117.1 (1980).)

(k) *Toilet and bathing facilities.* Each toilet and bathroom facilty shall comply with § 1190.150, Toilet and Bathing Facilities, and shall provide at least one accessible fixture and accessory specified in Pararaph 1190.150(b). In toilet and bathroom facilities providing multiple fixtures and accessories, at least 2 percent of each type of fixture or accessory shall comply with § 1190.150. (This provision is different from ANSI A117.1 (1980).)

(l) *Drinking fountains and water coolers.* If drinking fountains or water coolers are provided, each shall comply with § 1190.160, Drinking Fountains and Water Coolers. (This provision is different from ANSI A117.1 (1980).)

(m) *Controls and operating mechanisms.* If controls and operating mechanisms are provided, each shall comply with § 1190.170, Controls and Operating Mechanisms. (This provision is different from ANSI A117.1 (1980).)

(n) *Alarms.* If alarms are provided, each shall comply with § 1190.180, Alarms. (This provision is different from ANSI A117.1 (1980).)

(o) *Tactile warnings.* Tactile warnings shall comply with § 1190.190, Tactile Warnings, and shall be provided only at the following locations:

(1) Transit vehicle loading platforms;

(2) Edges of streets without curbs, guardrails, planted areas, or similar boundary elements;

(3) Edges of pools not protected by guardrails, walls, or curbs; and

(4) Doors that lead to hazardous areas.

Tactile warnings shall not be used at emergency exit doors. (This provision is different from ANSI A117.1 (1980).)

(p) *Signage.* (1) The international symbol of accessibility shall comply with paragraph 1190.200(e), Symbol of Accessibility, and shall be used at the following locations:

(i) Parking spaces designated as reserved for the physically handicapped;

(ii) Passenger loading zones;

(iii) Accessible entrances;

(iv) Accessible toilet and bathing facilities.

(2) Informational signing, if provided, shall comply with § 1190.200. (This provision is different from ANSI A117.1 (1980).)

(q) *Telephones.* At each location where public telephones are provided, each telephone shall comply with § 1190.210, Telephones. If banks of two or more telephones are provided, at least one telephone per bank shall have a volume control and at least one telephone per bank shall be equipped with a TDD or with signage directing a user to a TDD that is located in proximity to the bank. (This provision is different from ANSI A117.1 (1980).)

(r) *Seating, tables, and work surfaces.* If fixed seating, tables, and work surfaces are provided, at least 5 percent of each element shall comply with § 1190.220, Seating, Tables, and Work Surfaces. (This provision is different from ANSI A117.1 (1980).)

(s) *Assembly areas.* If assembly areas are provided, accessible viewing positions shall compy with § 1190.230, Assembly Areas, and the following table:

Capacity of assembly space	Number of viewing positions
1 to 25	1.
26 to 50	2.
51 to 75	3.
75 to 100	4.
76 to 150	5.
151 to 200	6.
201 to 300	7.
301 to 400	8.
401 to 500	9.
501 to 1,000	2% of total.
Over 1,000	20 plus 1 for each 100 over 1,000.

(This provision is different from ANSI A117.1 (1980).)

(t) *Storage.* If storage facilities are provided, each such facility shall comply with § 1190.240, Storage. (This provision is similar to ANSI A117.1 (1980).)

§ 1190.32 Accessible buildings and facilities: Additions.

(This provision is not in ANSI A117.1 (1980).)

Each addition to an existing building or facility shall compy with § 1190.31 except as follows:

(a) *Entrances.* If a new addition to a building or facility does not have an

entrance, then at least one entrance in the existing building or facility shall comply with § 1190.120, Entrances.

(b) *Accessible route.* If the only accessible entrance to the addition is located in the existing building or facility, then at least one accessible route shall comply with § 1190.50, Walks, Floors, and Accessible Routes, and shall provide access through the existing building or facility to all rooms, elements, and spaces in the new addition.

(c) *Elements, essential features, and common areas.* (1) If an element or space is provided in the existing building or facility and if it is not provided in the addition, at least one of each element or space in the existing building or facility shall be made accessible and shall comply with the appropriate section.

(2) Common areas shall be made accessible if such areas are not provided in the addition, and shall comply with the appropriate Section.

§ 1190.33 Accessible buildings and facilities: Alterations.

(This provision is not in ANSI A117.1 (1980).)

(a) *General.* Alterations to existing buildings or facilities shall comply with the following:

(1) If existing elements, spaces, essential features, or common areas are altered, then each such altered element, space, feature, or area shall comply with the applicable provisions of § 1190.31, Accessible Buildings and Facilities: New Construction.

(2) If stairs or power-driven vertical access equipment (*e.g.,* escalators) are altered, installed, or replaced then a means of accessible vertical access shall be provided that complies with § 1190.70, Ramps and Curb Ramps; § 1190.100, Elevators; or § 1190.110, Platform Lifts.

(3) If alterations are conducted in phases, the total area or costs of the alterations shall be used to calculate the requirements of § 1190.33 (b) and (c) irrespective of the number of phases required to complete the alterations.

(4) If alterations of single elements, when considered together, amount to an alteration of a portion or space of a building or facility, the entire portion or space shall be made accessible.

(b) *Alterations involving less than 50% of the value and floor space.* If the alterations involve the expenditure of less than 50% of the full and fair cash value of the building or facility, *and* if the alterations involve less than 50% of the gross square footage of the building, then each element, feature, or space altered shall comply with the applicable provisions of the guidelines.

(c) *Alterations involving 50% or more of the value and floor space.* If the alterations involve either the expenditure of 50% or more of the full and fair cash value of the building or facility, *or* if the alterations involve 50% or more of the gross square footage of the building, then the entire building or facility shall be brought into compliance with applicable provisions of these guidelines to the following extent:

(1) At least one accessible route shall comply with § 1190.50, Walks, Floors, and Accessible Routes, and § 1190.33(a).

(2) At least one accessible entrance shall comply with § 1190.120, *Entrances.* Additional accessible entrances shall comply with § 1190.33(a)(1).

(3) Vertical access shall comply with §§ 1190.31 (c), (d), (f), and (g), and shall comply with § 1190.70, Ramps and Curb Ramps; § 1190.80, Stairs, § 1190.100, Elevators; and § 1190.110, Platform Lifts.

(4) If provided, at least one toilet facility and at least one bathing facility on each floor shall comply with § 1190.150, Toilet and Bathing Facilities, and shall provide fixtures and accessories in accordance with § 1190.31(k).

(5) If any of the following elements or spaces is provided, each such element or space shall comply with the appropriate requirements for that element or space:

(i) § 1190.60, Parking and Passenger Loading Zones;

(ii) § 1190.160, Drinking Fountains and Water Coolers;

(iii) § 1190.180, Alarms; and

(iv) § 1190.200, Signage. All inaccessible entrances, toilet and bathing rooms, drinking fountains, stairwells, escalators and telephones shall have informational signage directing the user to corresponding accessible facilities.

(v) § 1190.210: Telephones

(vi) § 1190.220: Seating, Tables and Work Surfaces

(vii) § 1190.230: Assembly Areas

(viii) § 1190.240: Storage

§ 1190.34 Accessible buildings and facilities: Leased.

(This provision is not in ANSI A117.1 (1980).)

Buildings or facilities or portions thereof leased by the Federal government shall comply with the requirements of § 1190.31, New Construction; § 1190.32, Additions, and § 1190.33, Alterations. If no fully accessible space is available, space may be leased only if the following conditions are met:

(a) At least one accessible route is provided from an accessible entrance complying with § 1190.120 Entrances to all leased portions of the building or facility and to each essential feature which serves that portion of the building or facility. The accessible route shall comply with the requirements of § 1190.50 Walks, floors, and accessible routes;

(b) Each essential feature of the portion of the building or facility to be leased is accessible and complies with the applicable Sections;

(c) Common areas that are approved space needs of the occupant agency serving the portions of the building or facility to be leased are accessible and comply with the applicable Section.

Subpart D—Technical Provisions

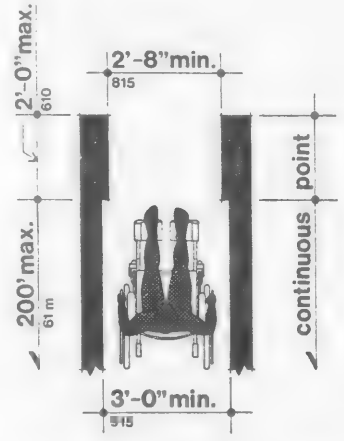
§ 1190.40 Human data.

(a) *General.* This section is the basis for clearances and equipment location required by other sections. (This provision is similar in ANSI A117.1 (1980).)

(b) *Moving wheelchair clearances.* Provide the clearances for a moving wheelchair, as follows:

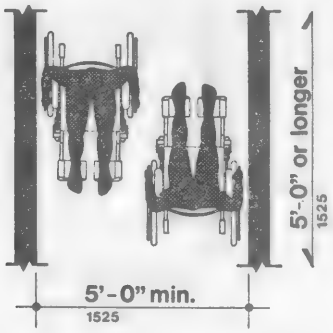
(1) Minimum clear width for point passage is 2'–8" (815 mm). Maximum length of point passage is 2'–0" (610 mm). (This provision is similar to ANSI A117.1 (1980).)

(2) Minimum clear width for continuous passage is 3'–0" (915 mm). (fig. 4.1). (This provision is similar to ANSI A117.1 (1980).)



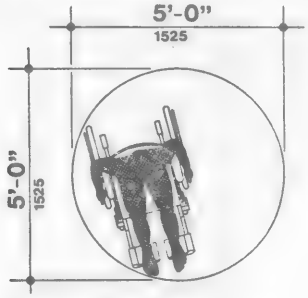
passage 4.1
scale: 1/4"= 1'-0"

(3) Minimum clear width for two wheelchairs to pass is 5'–0" (1,525 mm). (fig. 4.2). (This provision is similar to ANSI A117.1 (1980).)

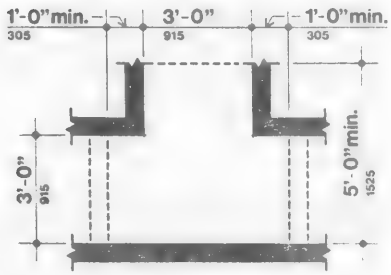


two-way 4.2
scale: 1/4"= 1'-0"

(4) Minimum clear space to make a 180 degree turn is 5'–0" (1,525 mm) diameter (fig. 4.3) or a T-shaped space (fig. 4.4). (This provision is similar to ANSI A117.1 (1980).)



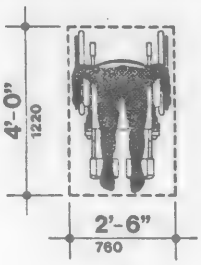
180°/360° 4.3
scale: 1/4"= 1'-0"



t-turn 4.4
scale: 1/4"= 1'-0"

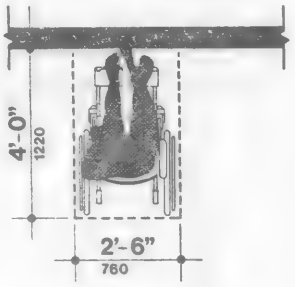
(c) *Clear access space.* Provide the following clear floor or ground access space to accommodate a single, stationary occupied wheelchair, where required by other sections:

(1) Clear access space shall be a minimum of 2'–6" by 4'–0" (760 mm by 1,220 mm) (fig. 4.5). (This provision is similar to ANSI A117.1 (1980).)

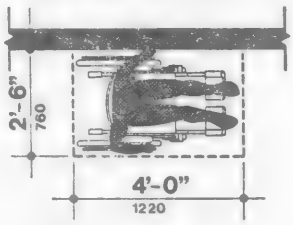


clear access space 4.5
scale: 1/4"= 1'-0"

(2) Position clear access space for either forward or parallel approach to an object or element as required (figs. 4.6 and 4.7). (This provision is similar to ANSI A117.1 (1980).)



forward approach 4.6
scale: 1/4"= 1'-0"

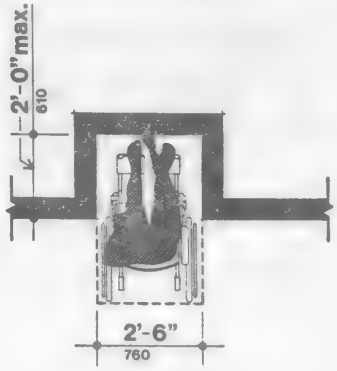


parallel approach 4.7
scale: 1/4"= 1'-0"

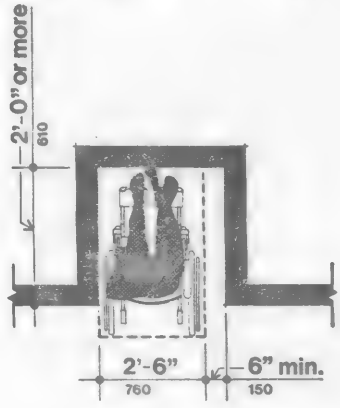
(3) Clear access space may overlap the clear space required under some objects. (This provision is similar to ANSI A117.1 (1980).)

(4) Clear access space shall adjoin or overlap an accessible route or another clear access space for at least one full, unobstructed side. (This provision is similar to ANSI A117.1 (1980).)

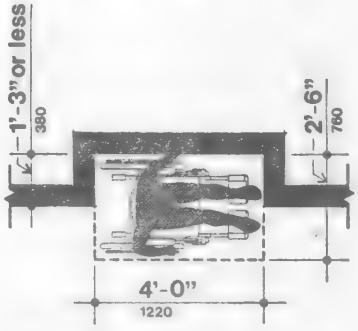
(5) If clear access space is confined or restricted on all or part of three sides, provide additional maneuvering space adjoining clear access space (figs. 4.8 and 4.9, 4.10 and 4.11). (This provision is similar to ANSI A117.1 (1980).)



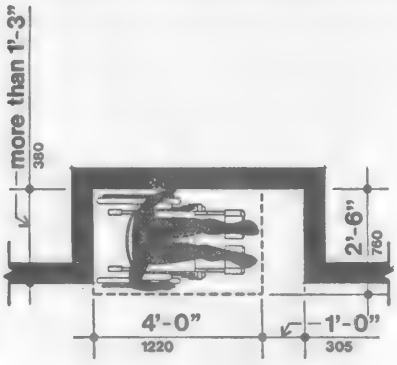
alcove 4.8
scale: 1/4"= 1'-0"



alcove 4.9
scale: 1/4"= 1'-0"



alcove 4.10
scale: 1/4"= 1'-0"

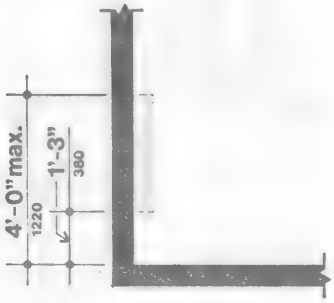


alcove
scale: 1/4"= 1'-0"
4. 11

(6) Clear access space surfaces shall comply with Paragraph 1190.50(i) Walks, floors, and accessible routes. (This provision is similar to ANSI A117.1 (1980).)

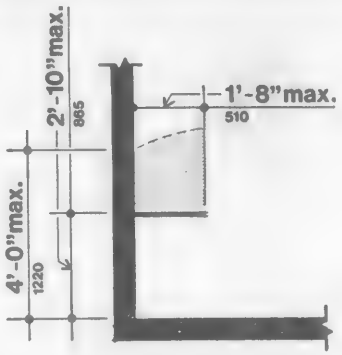
(d) *Reach limitations.* Reach limitations are a function of approach in the clear access space:

(1) *Forward reach:* (i) Maximum height of reach for a forward approach shall be 4'–0". (1,220 mm) (fig. 4.12).

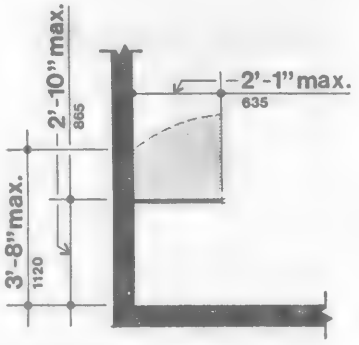


forward reach
scale: 1/4"= 1'-0"
4. 12

(ii) Maximum height of reach for a forward approach at obstructions shall conform with fig. 4.13 and 4.14.



reach over obstacle
scale: 1/4"= 1'-0"
4. 13

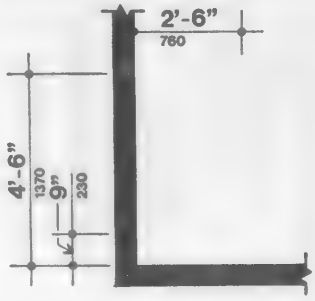


reach over obstacle
scale: 1/4"= 1'-0"
4. 14

(§ 1190.40(a)(1)(i) and (ii) are similar to ANSI A117.1 (1980).)

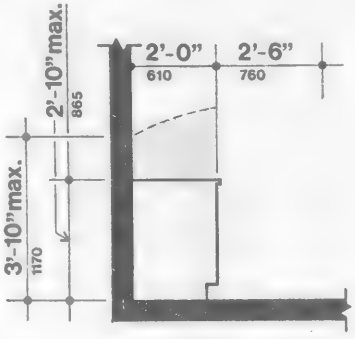
(2) *Side reach (parallel approach).* (i) Maximum height of reach for a side approach shall be 4'–6" (1,370 mm) (fig. 4.15).

(ii) Minimum height of reach for a side approach shall be 9 in. (230 mm) (fig. 4.12).



side reach
scale: 1/4"= 1'-0"
4. 15

(iii) Maximum height of reach for a side approach over an obstruction shall conform with fig. 4.16.



reach over obstruction
scale: 1/4"= 1'-0"
4. 16

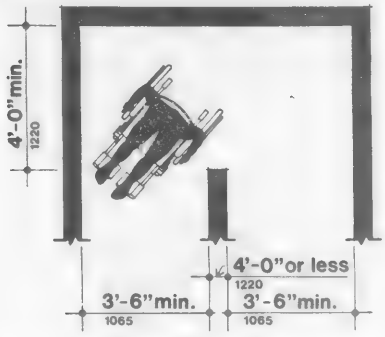
(§ 1190.40(a)(2)(i) and (ii) are similar to the ANSI A117.1-(1980).)

(3) To be accessible, special equipment may require measurements different from those provided above and these measurements should be dictated by equipment design. (This provision is similar to ANSI A117.1 (1980).)

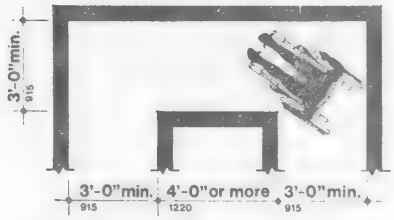
§ 1190.50 Walks, floors, and accessible routes.

(a) *General.* Accessible routes required by Subpart C, *Scope,* shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

(b) *Width.* Provide the minimum clear width for continuous passage and for point passage required by paragraphs 1190.40(b) (1) and (2), (fig. 4.1). Provide maneuvering clearances shown in figs. 5.1 & 5.2 if the accessible route requires a turn around the obstruction. (This provision is similar to ANSI A117.1 (1980).)

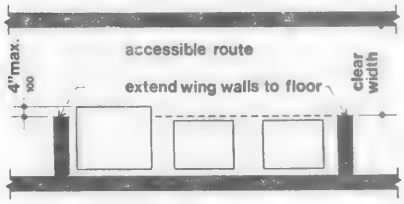


turn 5.1
scale: 1/4"= 1'-0"



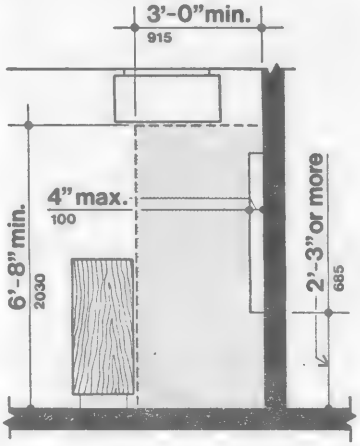
turn 5.2
scale: 1/4"= 1'-0"

(c) *Protruding objects.* No protruding object shall reduce the minimum clear width for continuous passage of an accessible route or maneuvering space (fig. 5.3). (This provision is similar to ANSI A117.1 (1980).)

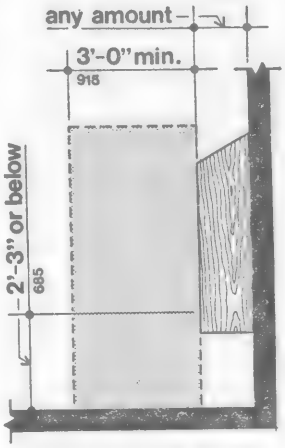


clear width 5.3
scale: 1/4"= 1'-0"

(1) Objects fixed to wall surfaces shall not project into accessible routes more than 4 inches (100 mm) if mounted with their leading edges between 2'–3" and 6'–8" (685 mm and 2030 mm) above finish floor (figs. 5.4 & 5.5). (This provision is similar to ANSI A117.1 (1980).)

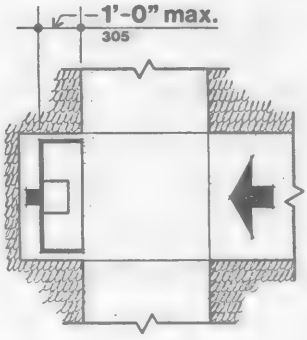


clear width 5.4
scale: 1/4"= 1'-0"

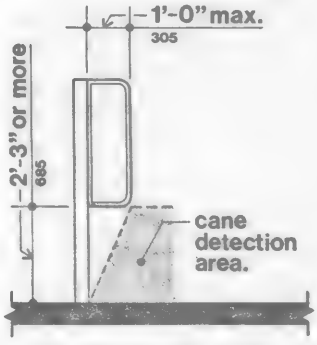


clear width 5.5
scale: 1/4"= 1'-0"

(2) Free standing objects mounted on posts or pylons may overhang 1'–0" (305 mm) maximum from 2'–3" to 6'–8" (685 mm to 2030 mm) above ground or finished floor surface (figs. 5.6 and 5.7). (This provision is similar to ANSI A117.1 (1980).)

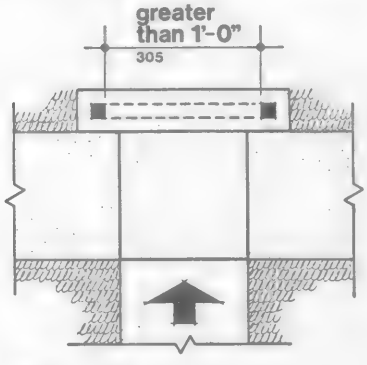


projecting object 5.6
scale: 1/4"= 1'-0"

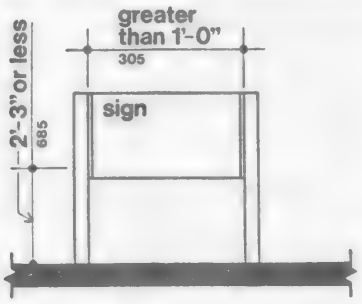


projecting object 5.7
scale: 1/4"= 1'-0"

(3) Objects mounted below 2'–3" (685 mm) may protrude any distance (figs. 5.8 & 5.9). (This provision is similar to ANSI A117.1 (1980).)



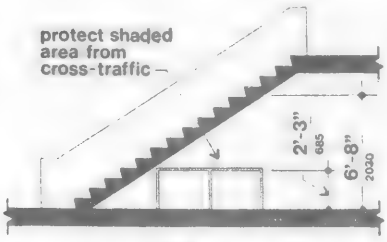
fixed obstruction 5.8
scale: 1/4"= 1'-0"



fixed obstruction 5./9
scale: 1/4"=1'-0"

(d) *Passing space.* If an accessible route has less than a 5'–0" (1,525 mm) clear width, provide accessible passing spaces at intervals not exceeding 200 ft. (61 m) unobstructed view. *See* figs. 4.2 and 4.4 for examples of permissible passing spaces. (This provision is similar to ANSI A117.1 (1980).)

(e) *Vertical clearance.* Provide a minimum vertical clearance (headroom) of 6'–8" (2,030 mm) throughout accessible routes. (This provision is similar to ANSI A117.1 (1980).) If vertical clearance is reduced to less than 6'–8", provide a barrier or a tactile warning complying with § 1190.190, Tactile warnings, to warn blind or visually-impaired persons (figs. 5.4 and 5.9 and 5.15) (This provision is not in ANSI A117.1 (1980).)

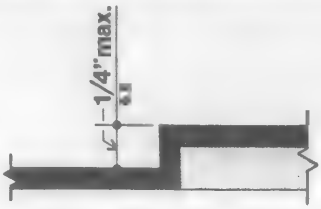


overhead hazard 5./15
scale: 1/8"=1'-0"

(f) *Slope.* Accessible routes with running slopes of 1:20 or greater shall be considered ramps and shall comply with § 1190.70, Ramps and curb ramps. (This provision is similar to ANSI A117.1 (1980).) No cross-slopes on an accessible route shall exceed 1:48. (This provision is different from ANSI A117.1 (1980).)

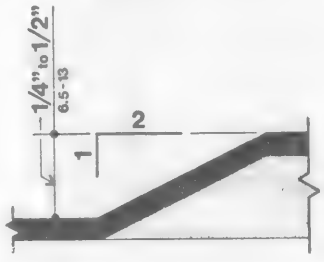
(g) *Level changes.* All changes in level or grade in accessible routes shall comply with the following:

(1) Up to ¼ inch (6 mm): Vertical without edge treatment (Fig. 5.10).



edge treatment 5./10
scale: full

(2) ¼ inch to ½ inch (6 mm to 13 mm): Beveled with slope not exceeding 1:2 (Fig. 5.11).



edge treatment 5./11
scale: full

(i) *Exception.* exterior sliding doors may be ¾" beveled and shall comply with § 1190.130(e)(i), *Thresholds.*

(3) Greater than ½ inch (13 mm): Comply with § 1190.70, Ramps and curb ramps; § 1190.100, Elevators; or § 1190.110, Platform Lifts.

(4) Stairs shall not be the sole means of vertical access along an accessible route.

(§ 1190.50(g) is similar to ANSI A117.1 (1980))

(h) *Egress.* Arrange egress so as to be readily accessible from all accessible rooms and spaces. Where fire code provisions require more than one means of egress from any space or room, such means of accessible egress shall also be provided to handicapped persons.

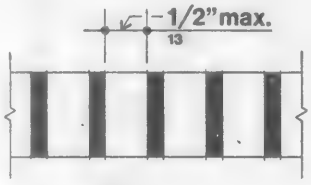
(1) *Exception.* In multiple story buildings and facilities where at-grade egress from each floor is impossible, either of the following is permitted: (i) The provision of approved fire and smoke partitions within each story creating horizontal exits; or

(ii) The provision of areas of refuge approved by agencies having authority for safety, within each floor.

(§ 1190.50(h) is similar to ANSI A117.1 (1980))

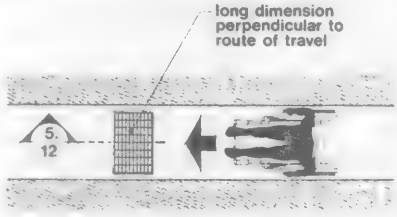
(i) *Ground and floor surfaces.* (1) Surface Condition: Surfaces of paving and floors shall be stable, firm, and slip-resistant. Irregular paving and flooring materials that may cause tripping or difficult wheelchair passage because of height differentials are not permitted on accessible routes. (This provision is similar to ANSI A117.1 (1980).)

(2) Drainage: Design accessible routes so that their surfaces will not collect water. Gratings located in accessible routes shall have openings no greater than ½ inch (13 mm) wide in one direction (fig. 5.12).



section: grating 5./12
scale: half

Gratings with elongated openings shall be so placed that the long dimension is perpendicular to the predominant route of travel (fig. 5.13). (This provision is similar to ANSI A117.1 (1980).)



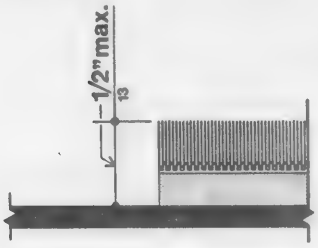
grating orientation 5./13
scale: not-to-scale

(3) Carpeting: If carpet or carpet tile is used on an accessible ground or floor surface, it shall: (i) Be securely attached; (This provision is similar to ANSI A117.1 (1980).)

(ii) Have a firm cushion or pad or no cushion or pad; (This provision is similar to ANSI A117.1 (1980).)

(iii) Have a construction of level loop, textured loop, level cut pile, or level cut/uncut pile; (This provision is similar to ANSI A117.1 (1980).)

(iv) Have a maximum combined thickness of pile, cushion, and backing height of ½ inch (13 mm) (Fig. 5.14); (This provision is different from ANSI A117.1 (1980.) and



carpet height
scale: full
5./14

(v) Have exposed fastened and edge trim complying with paragraph 1190.50(g), level changes, along the entire length of the exposed edge. (This provision is similar to ANSI A117.1 (1980).)

§ 1190.60 Parking and passenger loading zones.

(a) *General.* Parking and passenger loading zones required to be accessible by Subpart C—Scope shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

(b) *Location.* Accessible parking spaces and accessible passenger loading zones shall: (1) Be the spaces or zones located closest to the nearest accessible principal entrance on an accessible route; and

(2) If located in a separate building or facility, be on the shortest accessible route to an accessible entrance of the parking facility.

(§ 1190.60(b)(1) and (2) are different from ANSI A117.1 (1980).)

(c) *Accessible parking spaces.* Provide accessible parking spaces that: (1) Are at least 8'–0" (2,440 mm) wide,

(2) Have an adjacent access aisle at least 5'–0" (1,525 mm) wide, and that meets § 1190.50, Walks, floors, and accessible routes;

(3) May share a common access aisle between two parking spaces;

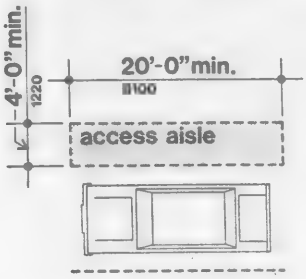
(4) Do not permit parked vehicle overhangs to reduce the clear width of accessible routes; and

(5) Have parking spaces and access aisles with surface slopes not exceeding 1:48 in all directions. (§ 1190.60 (c)(1), (2), (3), (4), (5), and (6) are similar to ANSI A117.1 (1980).)

(d) *Passenger loading zones.* Provide accessible passenger loading zones that: (1) Have an access aisle at least 4'–0" (1,220 mm) wide by 20'–0" (6 m) long adjacent, parallel, and level with the vehicle standing space,

(2) Have curb ramps conforming to § 1190.70, Ramps and curb ramps, if there are curbs between the access aisle and other portions of the accessible route; and

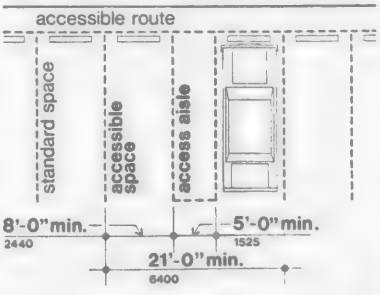
(3) have vehicle standing spaces and access aisles with surface slopes not exceeding 1:48 in all directions. *See* figure 6.2. (§ 1190.60 (d) (1), (2), and (3) are similar to ANSI A117.1 (1980).)



unloading zone
scale: 1/16"=1'-0"
6./2

(e) *Vertical clearance.* Provide minimum vertical clearances of 9'–6" (3.45 m) at accessible parking spaces, at accessible passenger loading zones, and along vehicle access routes to such areas from site entrances. (This provision is not in ANSI A117.1 (1980).)

(f) *Signage.* Signage reserving accessible parking spaces and identifying passenger loading zones and vehicle access routes shall comply with § 1190.200, Signage. Signage shall incorporate the International Symbol of Accessibility and shall not be obscured by a vehicle parked in the space. *See* figure 6.1. (This provision is similar to ANSI A117.1 (1980).)



accessible parking
scale: 1/16"=1'-0"
6./1

§ 1190.70 Ramps and curb ramps.

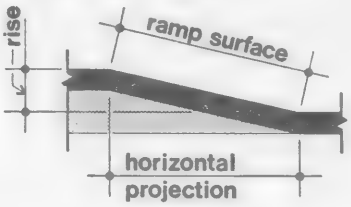
(a) *General.* Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with this section. Provide an accessible ramp or curb ramp whenever an accessible route crosses a level change greater than ½ in. (13 mm), and at all legally established crosswalks. (This provision is different from ANSI A117.1 (1980).)

(b) *Slopes and rise.* Provide the least practical slope for any ramp or curb ramp subject to the following maximums: (1) New Construction requirements: (i) Maxiumum running slope shall not exceed 1:12 (8.3%).

(ii) Maximum rise for any run shall not exceed 2'–6" (760 mm).

(iii) Maximum slopes of adjoining gutters, road surface, or adjoining accessible route shall not exceed 1:20 (fig. 7.8).

(iv) *See* figs. 7.1 and 7.2.



ramp slope
not to scale
7./1

slope	maximum rise		maximum projection	
	in	mm	ft	m
1:12	30	760	30	9
1:16	30	760	40	12
1:20	30	760	50	15

maximum rise & projection
scale: none
7./2

(§ 1190.7 (b)(1)(i), (ii), (iii), and (iv) are similar to ANSI A117.1 (1980))

(2) Existing construction requirements: (i) If space limitations prevent the use of paragraph 1190.70(b)(1) requirements, slopes and rises listed in fig. 7.3 may be used. (This provision is not in ANSI A117.1 (1980).)

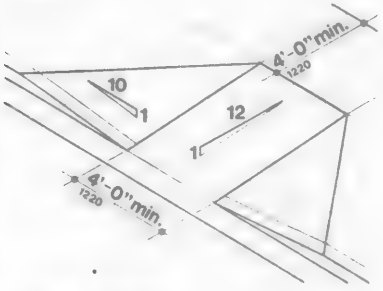
slope	maximum rise		maximum projection	
	in	mm	ft	m
1:10 to 1:8	3	75	2	0.6
1:12 to 1:10	6	150	5	1.5

existing facilities
scale: none
7./3

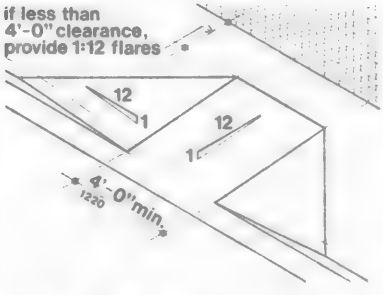
(c) *Width.* Provide a minimum clear width of 3'–0" (915 mm). (This provision is similar to ANSI A117.1 (1980).)

(d) *Cross-slope and surface.* Cross-slope of ramp surfaces shall not exceed 1:48. Ramp surfaces shall conform to § 1190.50, Walks, floors, and accessible routes. (This provision is different from ANSI A117.1 (1980).)

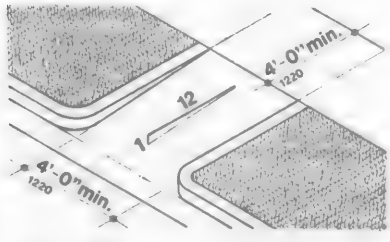
(e) *Curb ramps.* In addition to the requirements of § 1190.70(a) and (b), comply with the following requirements for curb ramps: (1) Provide flared sides if ramps are located where pedestrians may walk across the ramp; flared slope shall not exceed 1:10 (fig. 7.4 and 7.5). Provide a minimum clear width of 4'0" (122 mm) exlcusive of edge protection of flared sides. Where pedestrians will not normally walk accross a ramp, returned curbs may be used (fig. 7.6). (This provision different from ANSI A117.1 (1980).)



curb ramp
scale: 3/16" = 1'-0" — 7. 4

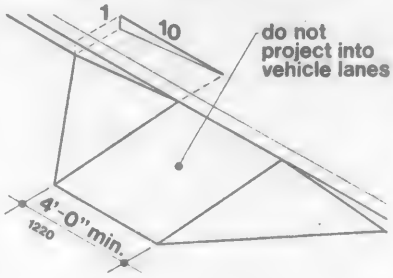


curb ramp
scale: 3/16" = 1'-0" — 7. 5



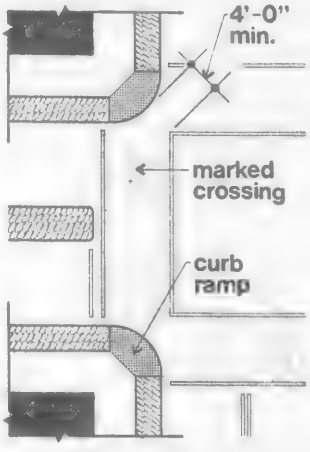
curb ramp
scale: 3/16" = 1'-0" — 7. 6

(2) Locate built-up curb ramps so that they do not project into vehicular traffic lanes (fig. 7.7). (This provision is similar to ANSI A117.1 (1980).)

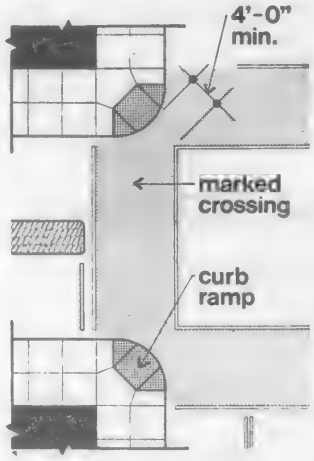


curb ramp
scale: 3/16" = 1'-0" — 7. 7

(3) Diagonal or corner type curb ramps having returned curbs or well defined edges, shall have such edges parallel to the direction of pedestrian flow (fig. 7.9). Diagonal or corner type curb ramps having flared sides shall have at least a 2'–0" (610 mm) long segment of straight curb located on each side of the curb ramp and within marked crossings (fig. 7.10). (This provision is similar to ANSI A117.1 (1980).)

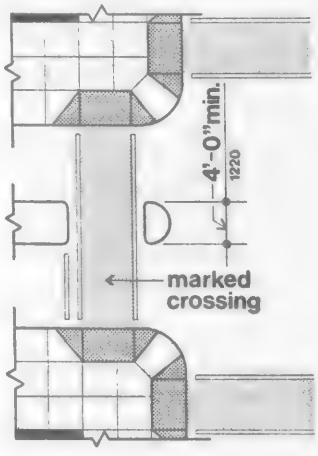


crossing
scale: 1" = 20'-0" — 7. 9

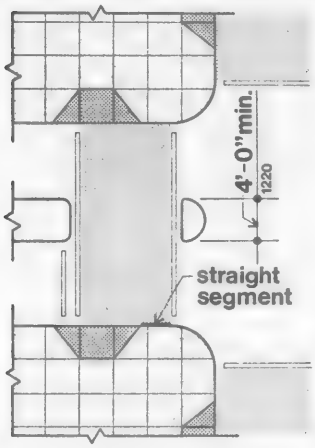


crossing
scale: 1" = 20'-0" — 7. 10

(4) Curb ramp discharge (top and bottom) shall be to a 4'–0" (1,220 mm) minimum deep clear space (figs. 7.4 and 7.5) Locate bottom discharge entirely within marked crossings, if the marked crossings are provided (figs 7.9, 7.10, 7.11, and 7.12). (This provision is not in ANSI A117.1 (1980).)



crossing
scale: 1" = 20'-0" — 7. 11



crossing 7.12
scale: 1"= 20'-0"

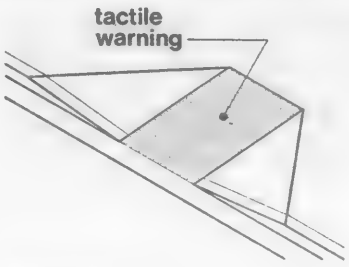
(5) Locate curb ramps to prevent blockage of discharge areas by parked vehicles. (This provision is similar to ANSI A117.1 (1980).)

(6) Cut any islands through flush with street surfaces or ramp each side to permit crossing. Provide 4'–0" (1,220 mm) long rest area (*see* fig. 7.11 and 7.12). (This provision is similar to ANSI A117.1 (1980).)

(7) Provide tactile warnings complying with § 1190.190, tactile warnings, at: (i) Walks and vehicular intersections without curbs (fig. 7.13) and

tactile warning 7.13
scale: 1"= 20'-0"

(ii) Curb ramps and associated flares, if any, that are located in pedestrian paths (fig. 7.14).

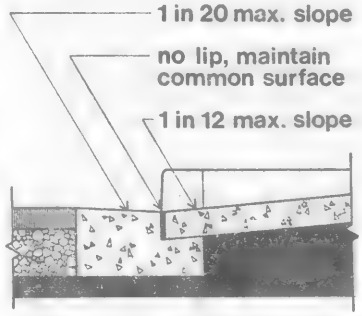


tactile warning 7.14
scale: 1/8"=1'-0"

(§ 1190.70 (e)(7)(i) and (ii) are similar to ANSI A117.1 (1980))

(8) Curb ramps do not require handrails. (This provision is not in ANSI A117.1 (1980).)

(9) Transitions from ramps to walks and ramps to gutters or streets shall be flush and free of abrupt changes (Fig. 7.). (This provision is not in ANSI A117.1 (1980).)



section 7.8
scale: 1/2"=1'-0"

(f) *Ramps.* In addition to the requirements of paragraphs 1190.70(b) and

(e) Provide the following at all ramps: (1) Provide landings at the top, bottom, and at changes of direction. If ramp runs exceed lengths given in fig. 7.2, provide intermediate landings. (This provision is different from to ANSI A117.1 (1980).)

(i) Landing width shall be at least as wide as the widest ramp run approaching it.

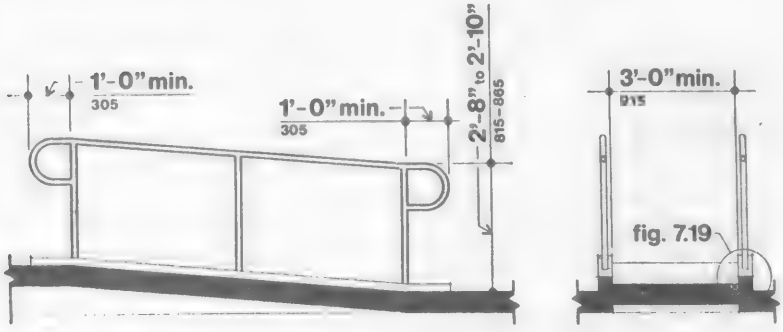
(ii) Minimum landing length shall be 5'–0" (1,535 mm).

(iii) Minimum landing size at direction changes shall be 5'–0" by 5'–0" (1,525 mm by 1,525 mm).

(iv) Landings with doors opening onto them shall comply with § 1190.130, Doors.

(§ 1190.70 (f)(1)(ii)(iii) and (iv) are similar to ANSI A117.1 (1980))

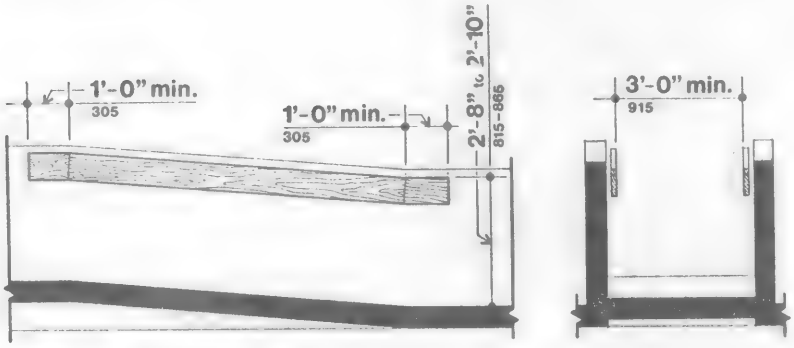
(2) Provide handrails that comply with § 1190.90, Handrails on both sides of any ramp run exceeding a 6–inch (250 mm) rise or a 6'–0" (1,830 mm) horizontal projection (figs. 7.15, 7.16, 7.17, and 7.18). (This provision is similar to ANSI A117.1 (1980).)



ramp with curb

scale: 1/4"= 1'-0"

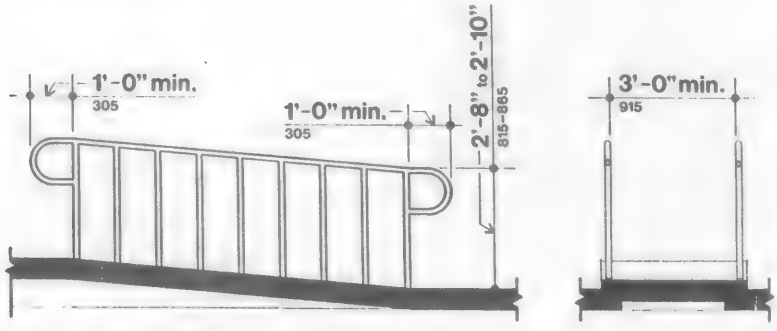
7.15



ramp with wall

scale: 1/4"= 1'-0"

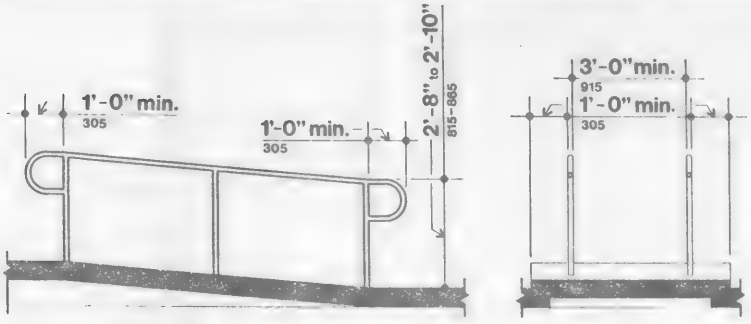
7.16



ramp with vertical guard

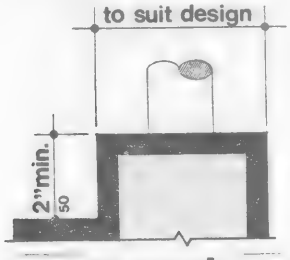
scale: 1/4"= 1'-0"

7.17



ramp with extended edge
scale: 1/4"=1'-0"
7.
18

(3) Provide curbs, walls, railings, or projecting surfaces at ramps and landings with drop-offs. Minimum curb height shall be 2 inches (50 mm), (fig. 7.19). (This provision is similar to ANSI A117.1 (1980).)



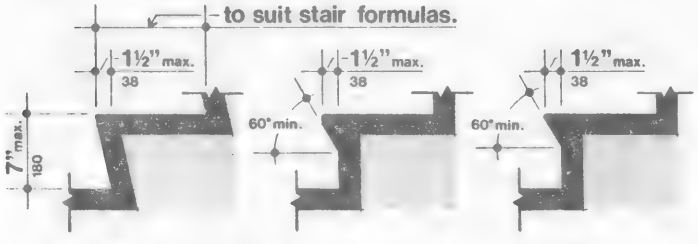
ramp curb
scale: 3"=1'-0"
7.
19

(g) *Exterior condition.* Curb ramps, ramp, and landing surfaces shall comply with paragraph 1190.50(i)(2), *Drainage.* (This provision is similar to ANSI A117.1 (1980).)

§ 1190.80 Stairs.

(a) *General.* Stairs that connect levels that are not connected by an elevator shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

(b) *Risers.* Provide risers that do not exceed 7 in. (178 mm) in height. Open risers are not permitted (fig. 8.1). (This provision is different from ANSI A117.1 (1980).)



stair risers & nosings
scale: 3/4"=1'-0"
8.
1

(c) *Nosings.* Nosings shall: (1) Not have abrupt undersides (Fig. 8.1);

(2) Project a maximum of 1½ in. (38 mm);

(3) Have a leading edge with a maximum radius of curvature of ½ in. (13 MM); and

(4) Be formed by risers that are sloped, or shall have undersides of the nosings which form an angle not less than 60 degrees from the horizontal (Fig. 8.1).

(§ 1190.80 (c)(1), (2), (3) and (4) are similar to ANSI A117.1 (1980))

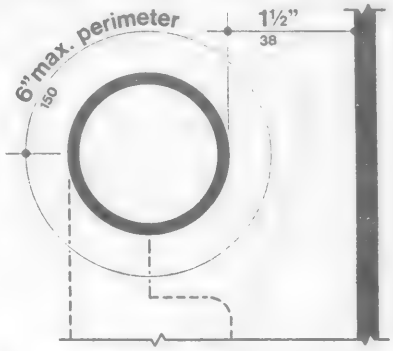
(d) *Handrails.* Provide continuous handrails at both sides of strairways. Handrails shall comply with § 1190.90. (This provision is similar to ANSI A117.1 (1980).)

(e) *Exterior condition.* Stair treads and landing surfaces shall comply with § 1190.50(i)(2) *Drainage.* (This provision is similar to ANSI A117.1 (1980).)

§ 1190.90 Handrails.

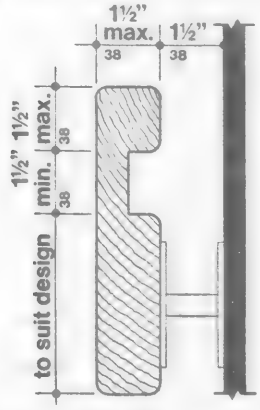
(a) *General.* Handrails for ramps or stairs required by § 1190.70, Ramps and curbs, and § 1190.80, Stairs, shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

(b) *Size and spacing.* Provide handrails meeting the following requirements: (1) The cross section for gripping of the handrail shall have a perimeter not greater than 6 inches (150 mm), with a ratio of maximum dimension to minimum dimension of not greater than 1:1.5 (*see* fig. 9.1). (This provision is similar to ANSI A117.1 (1980).)

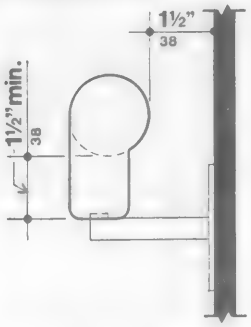


handrail
scale: half
9.
1

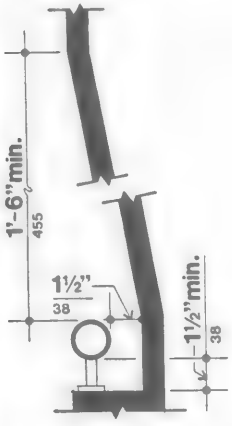
(2) If handrails are mounted adjacent to wall surfaces or to other surfaces, provide a 1½ inch (38 mm) (minimum/maximum) clear space between wall and handrail (*see* figs. 9.1, 9.2, 9.3, and 9.4). (This provision is similar to ANSI A117.1 (1980).) Freestanding rails located farther thatn 6" (150 mm) from wall or other vertical surfaces are not subject to this provision. (This provision is not in ANSI A117.1 (1980).)



handrail
scale: 3"=1'-0"
9.
2



handrail 9.3
scale: 3"=1'-0"



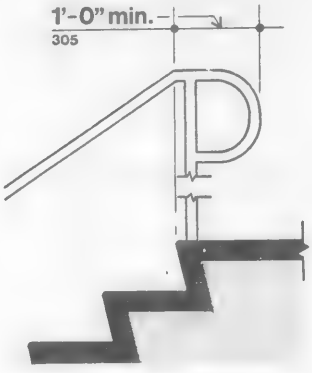
handrail 9.4
scale: 11/2"=1'-0"

(3) Handrails may be mounted in recesses if the recesses comply with fig. 9.4. (This provision is similar to ANSI A117.1 (1980).)

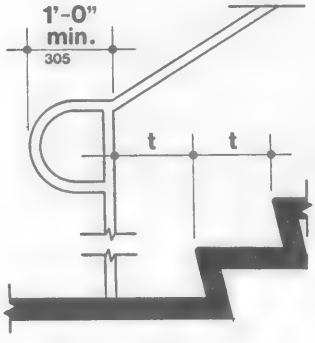
(4) On switchbacks or dogleg ramps or stairs, inside handrails shall be continuous. (This provision is similar to ANSI A117.1 (1980).)

(c) *Handrail projections.* (1) If outside handrails are not continuous, then: (i) at a ramp landing, project handrails parallel with ramp or landing surface for a length or 1'–0" (305 mm) beyond the top and bottom of ramp surfaces (fig. 7.14) (This provision is similar to ANSI A117.1 (1980)); and

(ii) At a stair landing, project handrails at least 1'–0" (305 mm) beyond the top riser and at least 1'–0" (305 mm) plus the depth of one tread beyond the bottom riser. The 1'–0" (305 mm) extension shall in each instance be parallel with the floor (figs. 8.3 and 8.4). (This provision is similar to ANSI A117.1 (1980).)



extension 8.3
scale: 1/2" = 1'-0"

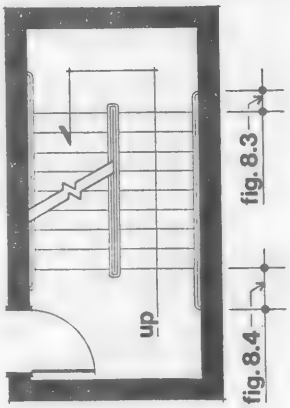


extension 8.4
scale: 1/4"= 1'-0"

(iii) *Exception.* Full extension of handrails shall not be required in alterations where such extensions would be hazardous or impossible due to plan configuration. (This provision is not in ANSI A117.1 (1980).)

(2) Do not interrupt gripping surfaces with newel posts, balusters, or other obstructions. (This provision is similar to ANSI A117.1 (1980).)

(d) *Mounting height.* Mount handrails at accessible stairs and ramps at a height of 2'–8" to 2'–10" (813 mm to 864 mm) above stair nosing(s) or ramp surface as applicable (figs. 7.13, 7.14, 7.15, 7.16 and 8.2). (This provision is not in ANSI A117.1 (1980).)



stairway 8.2
scale: 1/8"=1'-0"

(e) *Structural strengths.* Handrails, as installed, shall support a minimum momentary concentrated load applied at the top edge of 200 pounds (900 N) horizontal and 30 percent of that load vertically downward. Where the railing system is installed in public assembly occupancies, the loading shall be increased 50 percent. Test criteria shall be in conformance with *Product Standard for Permanent Metal Railing Systems and Rails for Buildings,* American Society for Testing and Materials, (ASTM) E06.12. Handrails shall not rotate within their fittings. Handrails of material other than metal shall meet the same structural requirements. (This provision is different from ANSI A117.1 (1980).)

(f) *Hazards.* Ends of freestanding handrails shall be either rounded or returned smoothly to floor or post. (*see* paragraph 1190.50(c), *Protruding objects.*) (This provision is similar to ANSI A117.1 (1980).)

§ 1190.100 Elevators.

(a) *General.* (1) Elevators required by Subpart C—Scope shall comply with § 1190.100 and with the *American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks, A17.1–1978, and National Elevator Industry, Inc. (NEII) Suggested Minimum Elevator Requirements for the Handicapped, May 1977.* (This provision is different from ANSI A117.1 (1980).)

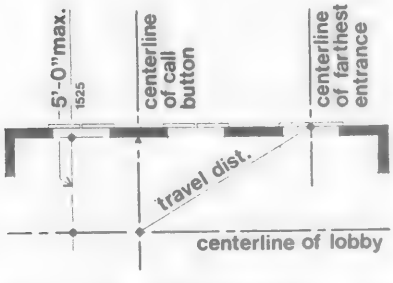
(2) Freight elevators shall not be considered as meeting the requirements of this section. (This provision is not in ANSI A117.1 (1980).)

(b) *Operation and leveling.* Elevators shall be automatic and shall be provided with a self-leveling feature that will automatically bring the car to the floor landing within a tolerance of ½ inch (13 mm) under normal loading and unloading conditions. The self-leveling feature shall, within its zone, be entirely automatic and independent of the operating device and shall correct for overtravel or under-travel. Maintain car approximately level irrespective of loading conditions. (This provision is similar to ANSI A117.1 (1980).)

(c) *Elevator door operation.* Elevator doors shall be a minimum of 2'–8" wide and shall be automatic. (1) The minimum acceptable time from notification that a car is answering a hall call until the doors of that car start to close shall be as indicated in fig. 10.1. The travel distance shall be established from a point in the center of the corridor or lobby (maximum of 5'–0" (1,525 mm)) directly opposite the farthest hall button to the centerline of the farthest hoistway entrance (fig. 10.2). (This provision is different from ANSI A117.1 (1980).)

distance		time
ft	m	sec
0 to 5	1.5	4
10	3	7
15	4.5	10
20	6	13

door timing 10.1
scale: none

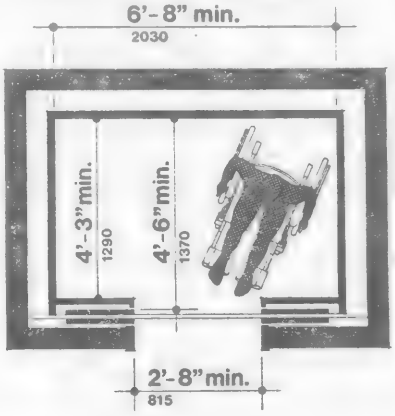


travel distance 10.2
scale: 1/8" = 1'-0"

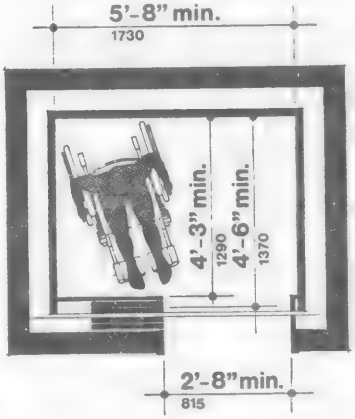
(2) Doors shall remain full open for a minimum of 5 seconds. (This provision is different from ANSI A117.1 (1980).)

(3) Provide doors with a reopening device which will function to stop and reopen the car door and adjacent hoistway door in case the car door is obstructed while the door is closing. This reopening device shall also be capable of sensing an object or person in the path of a closing door without requiring contact for activation at a nominal height of 5 inches and 2'–5" (125 mm and 735 mm) above finish floor. Such devices shall remain effective for a period of not less than 20 seconds. After this time, doors may close in accordance with the 1978 edition of ANSI A17.1. (This provision is similar to ANSI A117.1 (1980).)

(d) *Elevator cars.* (1) The minimum floor areas of elevator cars shall comply with figs. 10.3 and 10.4. (This provision is similar to ANSI A117.1 (1980).)



elevator car center opening 10.3
scale: 1/4" = 1'-0"



elevator car side opening 10.4
scale: 1/4" = 1'-0"

(2) Exception. Where existing shaft or structural elements prohibit strict compliance in alteration work, these dimensions may be reduced by the minimum amount necessary, but in no case shall they be less than 4'–0"x4'–0" (1,220 mm x 1,220 mm) clear minimum car size. (This provision is not in ANSI A117.1 (1980).)

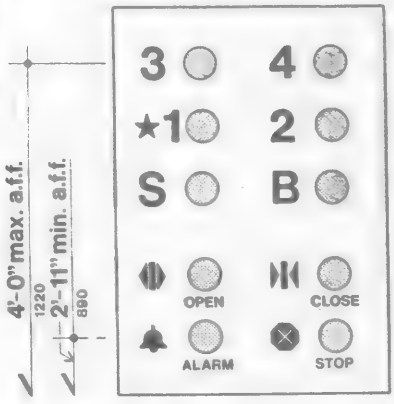
(3) Car floors shall comply with § 1190.50, Walks, floors and accessible route. (This provision is similar to ANSI A117.1 (1980).)

(4) Car controls shall be readily accessible from a wheelchair.

(i) Buttons, exclusive of border, shall be a minimum dimension of ¾in. (19 mm) and shall be raised or flush with the operating panel. (This provision is similar to ANSI A117.1 (1980).)

(ii) Provide a visual signal indicating when each call is registered and answered. (This provision is similar to ANSI A117.1 (1980).)

(iii) Mount the highest floor buttons at a maximum of 4'–0" (1,220 mm) above the floor and the lowest buttons at a minimum of 2'–11" (890 mm) above the floor (fig. 10.5). (This provision is different from ANSI A117.1 (1980).)

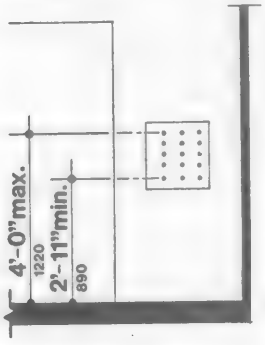


elevator control panel 10.5
scale: 3" = 1'-0"

(iv) Group emergency buttons at the bottom of the panel with their centerlines no lower than 2'–11" (890 mm). (This provision is similar to ANSI A117.1 (1980).)

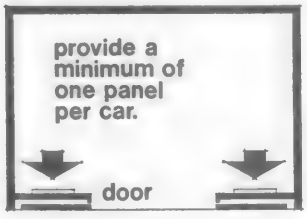
(v) Designate all control buttons by raised standard alphabet characters for letters, arabic characters for numerals, or standard symbols as shown in figs. 10.5 and 10.6 and as required by ANSI A17.1–1978 and NEII *Suggested Minimum Elevator Requirements for the Handicapped,* May 1977. Place raised designations to the immediate left of the

button to which they apply. Permanently attached, applied plates are acceptable. Locate the call button for the main entry floor in the left-most column and designate it with a raised star as shown. (This provision is similar to ANSI A117.1 (1980).)

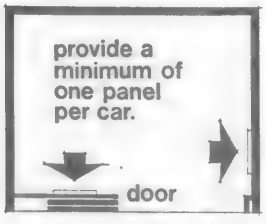


control panel
scale: 1/4"=1'-0"
10. 6

(vi) Locate control panels as shown in figs. 10.7 and 10.8.



control locations
scale: 1/4"=1'-0"
10. 7

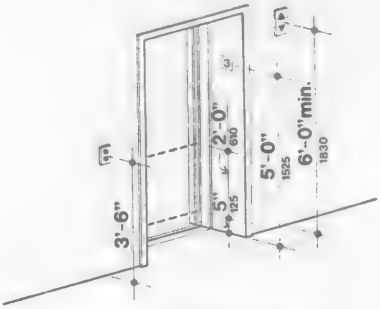


control locations
scale: 1/4"=1'-0"
10. 8

(e) *Door jamb markings.* Provide floor designation at each hoistway entrance on both jambs and comply with the following: (1) The centerlines of characters shall be located 5'–0" (1,525 mm) above finish floor; and

(2) Characters shall be a minimum of 2 inches (50 mm) high and shall comply with § 1190.200.

(3) Permanently applied plates are acceptable (fig. 10.9).



elevator entrance
scale: 1/4"=1'-0"
10. 9

(§ 1190.100(e) (1), (2), and (3) are similar to ANSI A117.1 (1980))

(f) *Lobby call buttons.* (1) Call buttons shall: (i) Be mounted with centerlines at 3'–6" (1,065 mm) above finish floor (this provision is similar to ANSI A117.1 (1980));

(ii) Be a minimum of ¾ in. (19 mm) in diameter (this provision is similar to ANSI A117.1 (1980));

(iii) Have visual signals indicating when a call is registered and answered (this provision is similar to ANSI A117.1 (1980));

(iv) Be raised or flush (this provision is not in ANSI A117.1 (1980)); and

(v) Have the button designating "up" mounted on top. (This provision is similar to ANSI A117.1 (1980).)

(2) Objects mounted beneath lobby call buttons shall not project into the elevator lobby more than 4 inches (100 mm) (fig. 10.9). (This provision is not in ANSI A117.1 (1980).)

(g) *Hall lanterns.* Provide a visual and audible signal at each hoistway

entrance to indicate car arrival and its travel direction.

(1) Audible signals shall sound once for the up direction and twice for the down direction, or shall annunciate the words "up" or "down." (This provision is similar to ANSI A117.1 (1980).)

(2) Visual signals shall: (i) Be mounted with their centerlines a minimum of 6'–0" (1,830 mm) above finish floor;

(ii) Have a minimum dimension of 2½ in. (64 mm);

(iii) Distinguish between up and down travel directions; and

(iv) Be visible from the vicinity of call buttons.

(§ 1190.100 (g) (1) and (2) are similar to ANSI A117.1 (1980))

(3) In-car lanterns positioned on car door jambs that comply with § 1190.100 (e)(2) are acceptable. (This provision is similar to ANSI A117.1 (1980).)

(h) *Car position indicator & signal.* Provide a visual car position indicator above the car operating panel or over the car door to show the floor position of the car in the hoistway. As the car passes or stops at a landing, illuminate the floor number and sound an audible signal.

(1) Characters shall be a minimum of ½ in. (19 mm) high and shall comply with § 1190.200, Signage, except for § 1190.200(c)(2).

(2) Provide audible indication of floor position as follows: (i) Audible signals exceeding the ambient noise level by at least 20 decibels loud with a frequency below 1,500 Hz; or

(ii) Automatic verbal announcement.

(§ 1190.100(H) (1) and (2) are similar to ANSI A117.1 (1980))

(i) *Illumination levels.* Illuminate car controls, platform, car threshold, and landing sill to a minimum of 5 footcandles. (This provision is similar to ANSI A117.1 (1980).)

(j) *Intercommunication system.* If provided, emergency intercommunication systems shall comply with ANSI A117.1–1978, NEII *Suggested Minimum Elevator Requirements for the Handicapped,* May 1977, and the following: (1) Locate the highest operable part of the system no higher than 4'–0" (1,200 mm) above car floor (this provision is different from ANSI A117.1 (1980));

(2) Identify the system with raised lettering and symbols complying with § 1190.200 (this provision is similar to ANSI A117.1 (1980));

(3) If system employs a handset, provide a 3'–0" (915 mm) cord; (This provision is different from ANSI A117.1 (1980).)

(4) If system is located in a closed compartment, compartment door hardware shall conform to § 1190.170, Controls and operating mechanisms (this provision is not in ANSI A117.1 (1980)); and

(5) Provide a monetary contact button to allow hearing-impaired individuals to summon assistance. (This provision is not in ANSI A117.1 (1980).)

§ 1190.110 Platform lifts.

(a) *General.* Platform lifts required by Subpart C—Scope, shall comply with this section.

(b) *Requirements.* Platform lifts shall: (1) Accommodate an occupied wheelchair within the space provisions of § 1190.40, Human data;

(2) Facilitate unassisted entry and exit from the lift in accordance with the provisions of § 1190.50, Walks, floors, and accessible routes;

(3) Have accessible controls complying with § 1190.170, Controls and operating mechanisms; and

(4) Satisfy safety requirements of the agency having responsibility for safety of the facility.

(§ 1190.110(b)(1), (2), (3), and (4) are similar to ANSI A117.1 (1980))

§ 1190.120 Entrances.

(a) *General.* Entrances required to be accessible by Subpart C—Scope, shall comply with § 1190.50, Walks, Floors and Accessible Routes; § 1190.120, Entrances; and § 1190.130, Doors. (This provision is different from ANSI A117.1 (1980).)

(b) *Service entrances.* A service entrance is not to be used as the only accessible entrance unless it is the only entrance to the building or facility. (This provision is similar to ANSI A117.1 (1980).)

(c) *Access to elevators.* If elevators are provided, an accessible route shall be provided from the entrance to the elevators. (This provision is similar to ANSI A117.1 (1980).)

§ 1190.10 Doors.

(a) *General.* Doors required to be accessible by Subpart C—Scope, shall comply with this section.

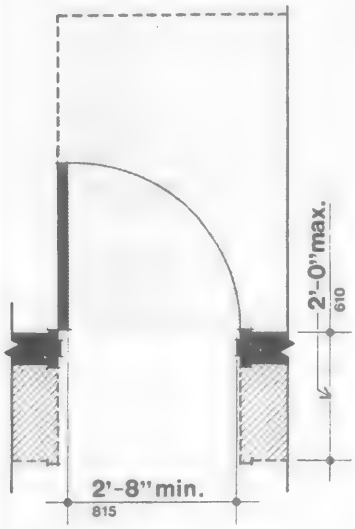
(1) Gates, including ticket gates, shall comply with this section.

(2) In double-leaf doorways, at least one leaf shall comply with this Section and it shall be the active leaf. Automatic doors are excepted from the one leaf provision.

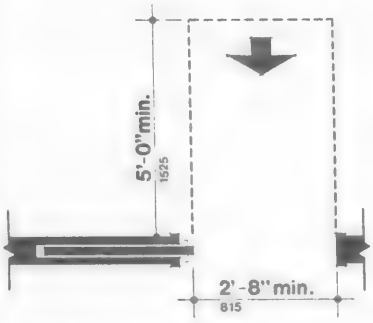
(3) Revolving doors or turnstiles are not accessible doors and shall not be the sole means of access at any accessible entrance or on any accessible route. However, the accessible door shall be immediately adjacent to the turnstile or revolving door.

(§ 1190.130(a)(1), (2), and (3) are similar to ANSI A117.1 (1980))

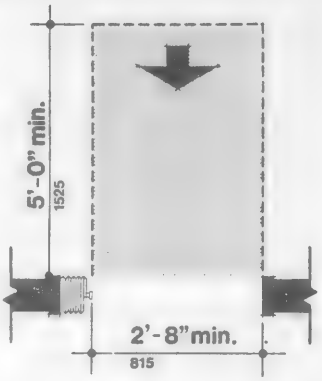
(b) *Clear width.* Provide doorways with clear opening of 2'–8" (815 mm) as measured with the door open 90 degrees between the face of the door and the latch side stop (see figs. 13.1, 13.2, and 13.3). Openings deeper than 2'–0" (610 mm) shall be a minimum of 3'–0" (915 mm) wide (see 4.2). (This provision is similar to ANSI A117.1 (1980).)



hinged 13.1
scale: 3/8"= 1'-0"

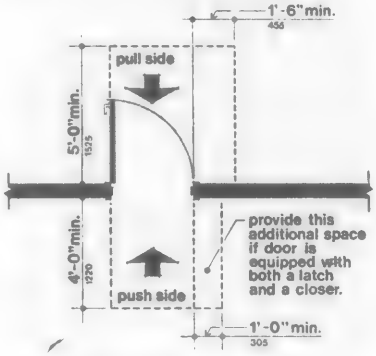


sliding 13.2
scale: 3/8"= 1'-0"



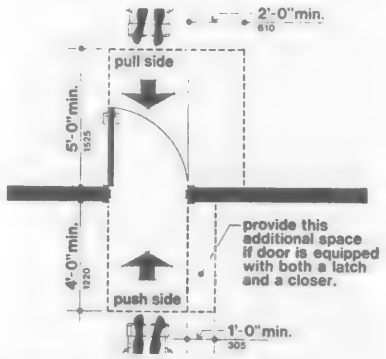
folding 13.3
scale: 3/8"= 1'-0"

(c) *Maneuvering space.* Provide the following space at all non-automatic and non-power-assisted doors: (1) At doors allowing front approach only, maneuvering space shall be as shown in figs. 13.2, 13.3, and 13.4. (This provision is similar to ANSI A117.1 (1980).)



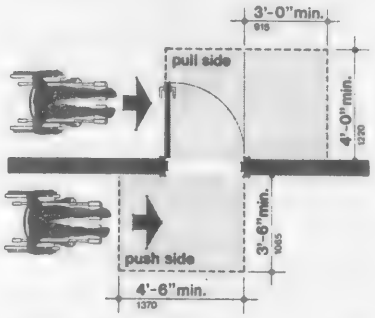
front approach 13.4
scale: 1/4"= 1'-0"

or



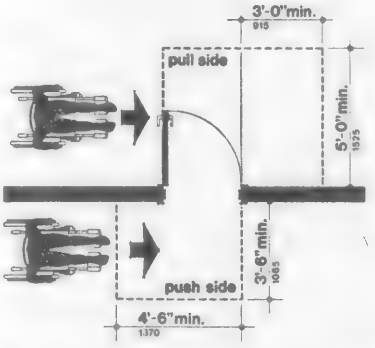
front approach 13.4
scale: 1/4"= 1'-0"

(2) At doors allowing hinge side approach only, maneuvering space shall be as shown in fig. 13.5. (This provision is similar to ANSI A117.1 (1980).)



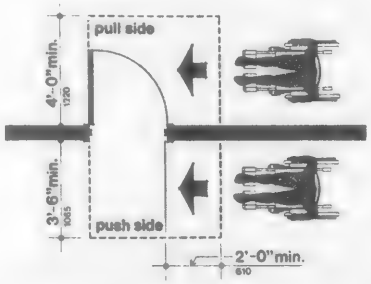
hinge approach 13.5
scale: 1/4"= 1'-0"

or



hinge approach 13.5
scale: 1/4"= 1'-0"

(3) At doors allowing latch side approach only, maneuvering space shall be as shown in fig. 13.6. (This provision is similar to ANSI A117.1 (1980).)



latch approach 13.6
scale: 1/4"= 1'-0"

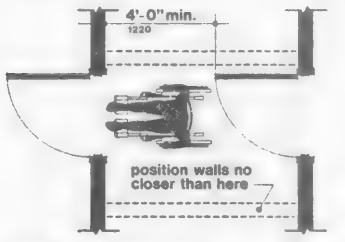
(4) The floor or surface area within the required maneuvering space shall be clear and shall comply with § 1190.50(i), *Grounds and floor surfaces.* It shall have a slope in any direction no greater than 1:48. (This provision is similar to ANSI A117.1 (1980).)

(i) *Exception.* (Comment is sought on two alternatives.)

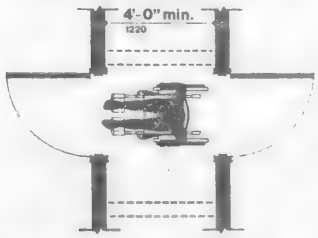
(A) Front approach entry doors to acute care hospital patient bedrooms shall be exempt from the 2'–0" (610 mm) latch side clearance shown in fig. 13.4 if the door is at least 3'–8" (1,120 mm) wide (this provision is different from ANSI A117.1 (1980)); or

(B) Front approach entry doors to acute care hospital patient bedrooms shall be exempt from the 1'–6" (460 mm) latch side clearance shown in fig. 13.4, if the door is at least 3'–8" (1,120 mm) wide. (This provision is different from ANSI A117.1 (1980).)

(d) *Doors in series.* Between any two hinged or pivoted doors in series, provide a minimum of 4'–0" (1,220 mm) plus the width of any door swinging into the space. Opposing doors shall not swing towards each other, into the intervening space (*see* figs. 13.7 and 13.8). (This provision is similar to ANSI A117.1 (1980).)



doors in series
scale: 1/4" = 1'-0"
13.7



doors in series
scale: 1/4" = 1'-0"
13.8

(e) *Thresholds.* Raised thresholds, if provided, shall be beveled with a slope not to exceed 1:2 and with heights not exceeding the following: (1) Exterior sliding doors: ¾ in. (19 mm) maximum.

(2) Other doors: ½ in. (13 mm) maximum.

(§ 1190.130(e)(1) and (2) are similar to ANSI A117.1 (1980))

(f) *Hardware.* Provide handles, pulls, latchs, locks and other operating hardware that are easy to grasp with one hand and that do not require twisting of the wrist, tight grasping, or tight pinching to operate. Acceptable designs include, but are not limited to, lever-operated hardware, push-type hardware, and U-shaped handles. Operating hardware shall be exposed and usable from both sides when sliding doors are fully open. Mount no operating hardware higher than 4'–0" (1,220 mm) above finish floor. (This provision is different from ANSI A117.1 (1980).)

(g) *Doors to hazardous areas.* Provide a textured surface on any door handle, knob, pull, or other piece of operating hardware on doors that lead to areas that may prove hazardous to blind people. Such areas may include, but are not limited to, loading platforms, mechanical equipment rooms, stages, and similar spaces. Textured surfaces may be achieved by knurling, roughening, or applying materials on the hand contact surface. Do not texture surfaces on hardware leading to emergency egress or on any doors other than those leading to hazardous areas. (This provision is similar to ANSI A117.1 (1980).)

(h) *Closers and opening forces.* (1) Door closers, if provided, shall have a sweep period so adjusted that from a position of 70 degrees open it will take the door a minimum of 5 seconds to reach a point 3 inches (75 mm) from the door jamb, measured from the leading edge of the door. (This provision is different from ANSI A117.1 (1980).)

(2) Maximum pushing or pulling opening forces for doors shall be as follows: (i) Adjust fire doors for the minimum opening forces permitted by fire label rating requirements.

(ii) Exterior hinged doors: 8.5 1bf (37.8 N)

(iii) Interior hinged doors: 5 1bf (22.2 N)

(iv) Sliding or folding doors: 5 1bf (22.2 N)

(v) Power-assisted doors: comply with § 1190.130(g)(2)(i)(ii)(iii) and (iv) for opening force and Section 10 of ANSI A156.10–1979 for closing force. These forces do not apply to forces required to retract or disengage latch bolts or other door latching devices.

(§ 1190.130 (h)(2)(i), (ii), (iii), (iv) and (v) are similar to ANSI A117.1 (1980).)

(i) *Automatic doors.* If automatic personnel doors are provided;

(1) Comply with *American National Standard for Power-Operated Doors,* ANSI A156.10–1979 (this provision is similar to ANSI A117.1 (1980)); or

(2) Provide custom designed installations utilizing slow opening, low powered automatic doors as described in paragraph 1.1.1 of ANSI A156.10–1979, provided such doors do not open to back check in less than 5 seconds and do not require more than 15 1bf (66.6 N) to stop door movement. (This provision is different from ANSI A117.1 (1980).)

§ 1190.140 Windows.

(a) *General.* Windows required to be accessible by Subpart C—Scope, shall comply with this section. (This provision is different from ANSI A117.1 (1980).)

(b) *Hardware.* Windows shall require less than 5 1bf (22.2N) of pressure to operate. Locks, bolts, cranks, and other window hardware necessary for operation shall comply with § 1190.170, Controls and operating mechanisms, (This provision is similar to ANSI A117.1 (1980).)

§ 1190.150 Toilet and bathing facilities.

(a) *Toilet facilities.* (1) Toilet rooms and bathing facilities required to be accessible by Subpart C—Scope, shall comply with this section (This provision is similar to ANSI A117.1 (1980).)

(2) *Exception.* Where alterations to existing facilities make strict compliance with § 1190.150 structurally impracticable, the addition of one "unisex" toilet per floor complying with § 1190.150(b), *Toilet fixtures and accessories* located adjacent to existing facilities, will be acceptable, in lieu of making existing facilities for each sex accessible. (This provision is not in ANSI A117.1 (1980).)

(3) *Doors.* Doors to toilet facilities shall:

(i) Comply with § 1190.130; and

(ii) Not swing into clear floor space associated with fixtures.

(§ 1190.150 (3)(i) and (ii) are similar to ANSI A117.1 (1980).)

(4) *Clear floor space.* (i) Each accessible toilet room and bathing facility shall have an unobstructed turning space that: (A) Complies with § 1190.40 (b)(4);

(B) Adjoins an accessible route complying with § 1190.50, Walks, floors, and accessible routes; and

(C) May overlap the accessible route and clear floor space at fixture.

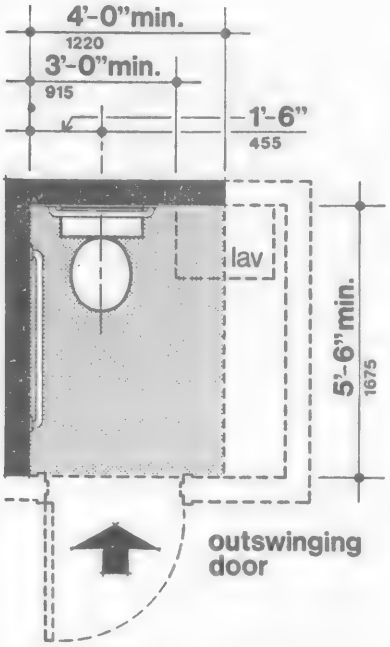
(§ 1190.150 (4)(i)(A), (B), and (C) are similar to ANSI A117.1 (1980).)

(ii) *Exception.* In toilet rooms with one water closet, doors in any position may reduce the clear turning space to 2'–8" by 5'–0" (815 mm by 1,220 mm), but shall not reduce any dimension by more than 3½ inches (90 mm) when fully open. (This provision is not in ANSI A117.1 (1980).)

(5) *Signage.* Signage required by Subpart C—Scope, that identifies accessible toilet rooms and bathing facilities shall comply with § 1190.200, Signage. (This provision is not in ANSI A117.1 (1980).)

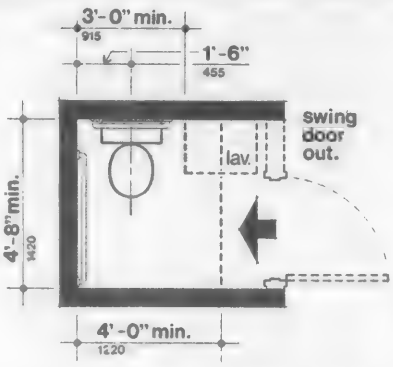
(b) *Toilet fixtures and accessories.*— (1) *General.* In accessible toilet rooms and bathing facilities, toilet fixtures and accessories shall have access spaces adjoining an accessible route. (This provision is similar to ANSI A117.1 (1980).)

(2) *Water closets.* Accessible water closets shall: (i) be provided with clear access space complying with figures 15.1, 15.2, 15.3 and 15.4 for fixtures not mounted in stalls. Clear access space may be provided to allow either left-handed or right-handed approach. (This provision is similar to ANSI A117.1 (1980).)



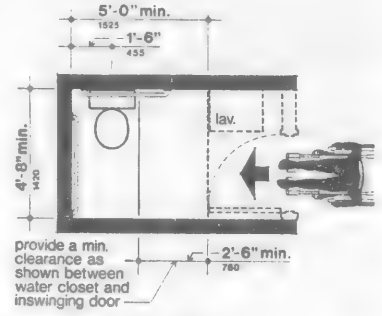
clear floor space 15. 1

scale: 1/4" = 1'-0"



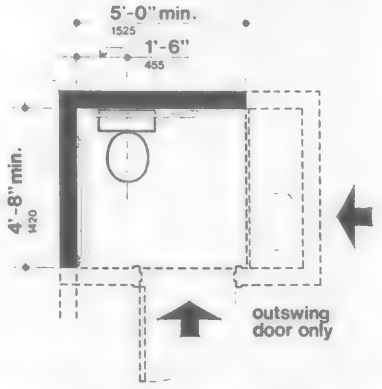
clear floor space 15. 2

scale: 1/4" = 1'-0"



clear floor space 15. 3

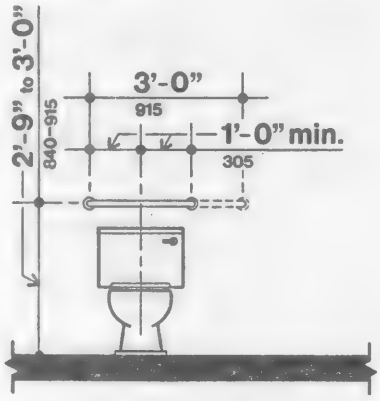
scale: 1/4" = 1'-0"



clear floor space 15. 4

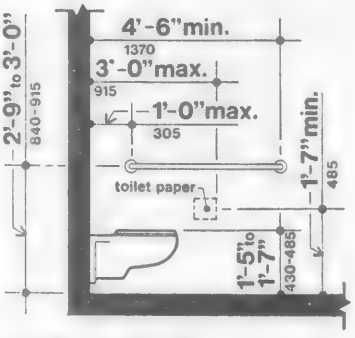
scale: 1/4" = 1'-0"

(ii) Have top of seats mounted 1'–5" to 1'–7" (430 mm to 485 mm) above finish floor (*see* figs. 15.5 and 15.6). (This provision is similar to ANSI A117.1 (1980).) Seats shall not be sprung to return to a lifted position when not in use. (This provision is not in ANSI A117.1 (1980).)



rear wall elevation 15. 5

scale: 1/4" = 1'-0"



side wall 15. 6

scale: 1/4" = 1'-0"

(iii) Have automatic or hand-operated flush controls complying with § 1190.170. Controls and operating mechanisms. Mount controls for use from the wide side of access area no higher than 3'–8" (1,120 mm) above the finish floor. (This

provision is similar to ANSI A117.1 (1980).)

(iv) Have toilet paper dispensers mounted as shown in fig. 15.6 Do not use dispensers that control delivery or that do not permit continuous paper flow. (This provision is different from ANSI A117.1 (1980).)

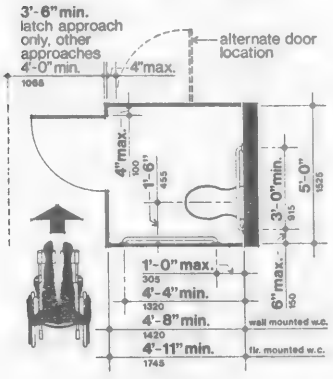
(v) Have grab bars mounted as shown in figs. 15.1, 15.2, 15.3, 15.4, 15.5, and 15.6. (This provision is similar to ANSI A117.1 (1980).)

(3) *Toilet stalls.* Accessible toilet stalls shall: (i) Have a water closet compying with § 1190.150 (b)(2). (This provision is similar to ANSI A117.1 (1980).)

(ii) Be of the size and arrangement as shown in fig. 15.7. Stall configuration may be reversed for right or left handed approach. (This provision is similar to ANSI A117.1 (1980).)

(A) *Exception.* Where alteration work makes provision of a fig. 15.7 stall structurally impractical or plumbing fixture code requirements prevent combining existing stalls to provide space, a fig. 15.8 stall may be provided in lieu of a fig. 15.7 stall. (This provision is not in ANSI A117.1 (1980).)

(B) [Reserved]



standard stall
scale: 1/4"= 1'-0" 15. 7

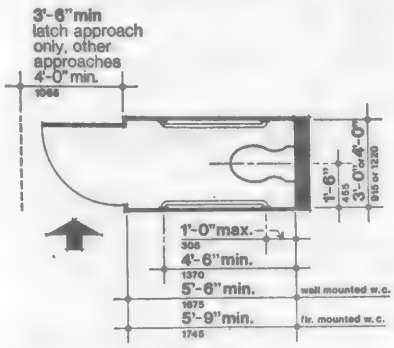
(iii) Have toe clearances at the front partition and at least one side partition of 9 inches (230 mm) above finish floor. If stall depth is greater than 5'–0" (1,525 mm), then toe clearance is optional. (This provision is similar to ANSI A117.1 (1980).)

(iv) Have doors complying with § 1190.130, Doors, and that are outswinging; and have the symbol of access affixed to the outside of door. (This provision is similar to ANSI A117.1 (1980).)

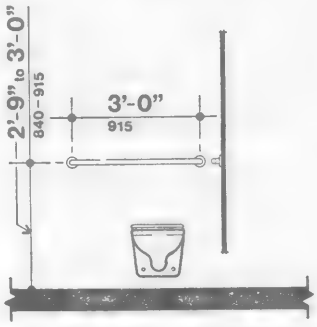
(A) *Exception.* If toilet stall approach is from the latch side of the stall door, clearance between the door side of the stall and any obstruction may be reduced to a minimum of 3'–6" (1,070 mm). (This provision is not in ANSI A117.1 (1980).)

(B) [Reserved]

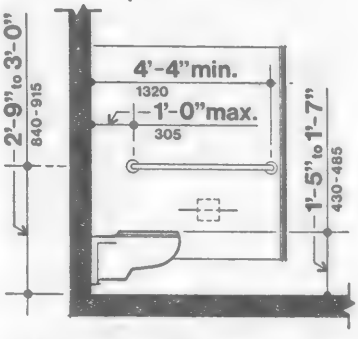
(v) Have grab bars mounted of the length and positioning shown in figs. 15.7, 15.8, 15.9, and 15.10.



alternate stall
scale: 1/4"= 1'-0" 15. 8

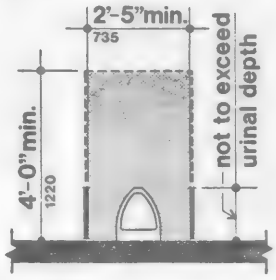


rear wall elevation
scale: 1/4"= 1'-0" 15. 9

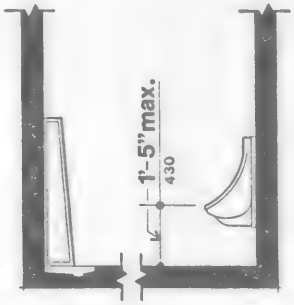


side wall
scale: 1/4"= 1'-0" 15. 10

(4) *Urinals.* Accessible urinals shall: (i) Be floor mounted stall type or wall-hung with an elongated rim mounted at 1'–5" (430 mm) maximum above finish floor (figs. 15.11 and 15.12) (This provision is similar to ANSI A117.1 (1980).)



urinal shields
scale: 1/4"= 1'-0" 15. 11



urinals
scale: 1/4"= 1'-0" 15. 12

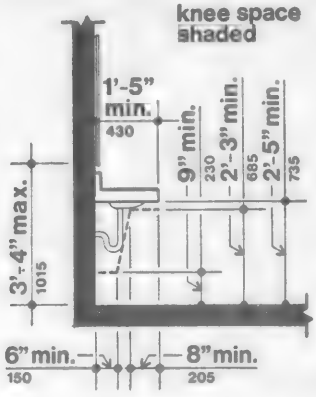
(ii) Have a clear access space as provided in fig. 15.11. (This provision is different from ANSI A117.1 (1980).); and

(A) *Exception.* Urinal shields that do not extend beyond the front edge of the urinal rim may be provided with 2'–5" (735 mm) clearance between them. (This provision is different from ANSI A117.1 (1980).)

(B) [Reserved]

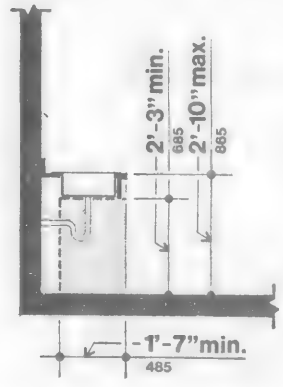
(iii) Have automatic or hand-operated controls complying with § 1190.17, Controls and operating mechanisms, and mounted no higher than 3'–8" (1,120 mm) above finish floor. (This provision is similar to ANSI A117.1 (1980).)

(5) *Lavatories and sinks.* Lavatories and sinks shall meet the following requirements: (i) Mount lavatories with the rim or counter height surface no higher than 2'–10" (865 mm) above finish floor. Provide knee clearance of a minimum of 2'–5" (735 mm) between bottom of apron and finish floor. Knee and toe clearance shall comply with figure 15.13. (This provision is different from ANSI A117.1 (1980).)



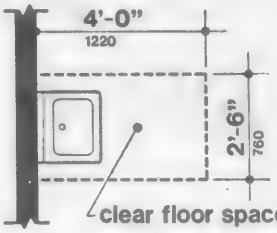
lavatory 15. 13
scale: 1/4"= 1'-0"

(ii) Mount sinks with the counter or rim no higher than 2'–10" (865 mm) above finish floor. Provide knee clearance of a minimum of 2'–3" (685 mm) high, 2'–6" (760 mm) wide and 1'–7" (485 mm) deep under the sink. Sink bowls shall be a maximum of 6½ inches (165 mm) deep (fig. 15.14). (This provision is similar to ANSI A117.1 (1980).)



sink 15. 14
scale: 1/4"= 1'-0"

(iii) Clear access space permitting front approach shall compy with § 1190.40, Human Data. Clear access space and knee space shall overlap 1'–7" (485 mm) maximum (fig. 15.15). (This provision is similar to ANSI A117.1 (1980).)



lavatory 15. 15
scale: 1/4"= 1'-0"

(iv) Insulate or cover hot water and drain lines. Allow no sharp or abrasive surfaces to remain exposed under accessible lavatories or sinks. (This provision is similar to ANSI A117.1 (1980).)

(v) Acceptable faucet designs include lever-operated, push type, touch-type, and electronically controlled mechanisms that comply with § 1190.170, Controls and operating mechanisms. (This provision is similar to ANSI A117.1 (1980).)

(A) *Exception.* Self-closing valves are permitted at lavatories if the faucet remains open for at least 10 seconds. (This provision is similar to ANSI A117.1 (1980).)

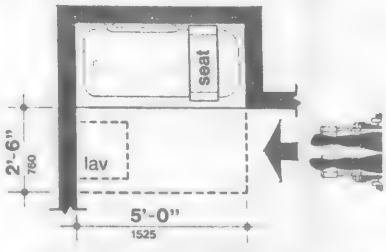
(B) [Reserved]

(6) *Mirrors.* Mount mirrors with the bottom edge of reflecting surface no higher than 3'–4" (1,015 mm) above finish floor (fig. 15.13). (This provision is similar to ANSI A117.1 (1980).)

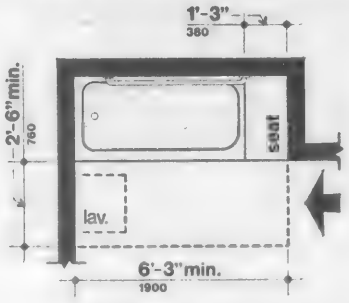
(7) *Controls, dispensers, receptacles, or other equipment* shall comply with § 1190.170, Controls and operating mechanisms. (This provision is similar to ANSI A117.1 (1980).)

(c) *Bathing facilities.*—(1) *Bathtubs and showers.* Bathtubs or showers shall:

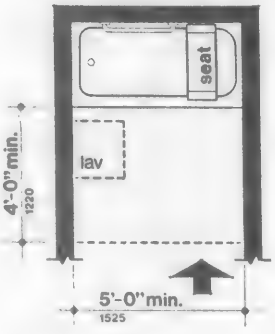
(i) Have clear access space as shown in figs. 15.16 to 15.18 and 15.24 and 15.25;



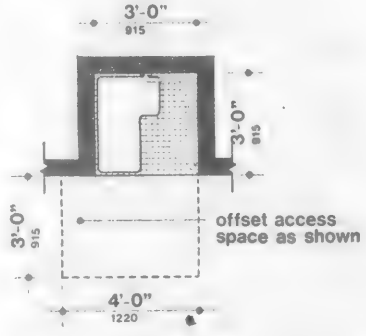
clear floor space 15. 16
scale: 1/4"= 1'-0"



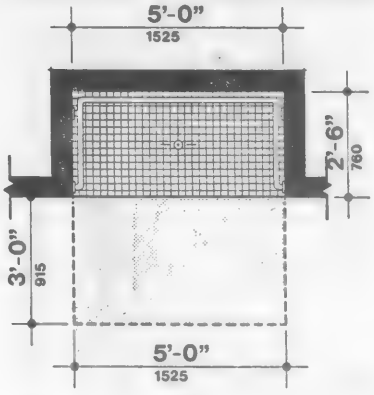
clear floor space 15. 17
scale: 1/4"= 1'-0"



clear floor space 15. 18
scale: 1/4"= 1'-0"

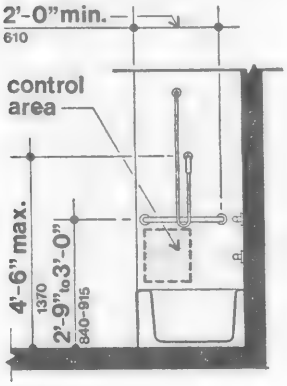


transfer stall 15. 24
scale: 1/4"= 1'-0"

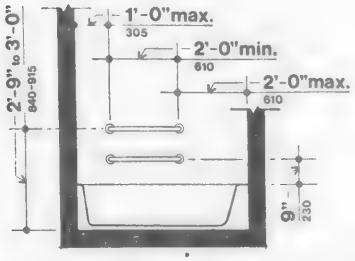


roll-in stall 15.25
scale: 1/4"=1'-0"

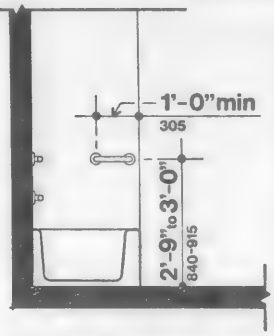
(ii) Have seats provided as shown in figs. 15.16, 15.17, 15.19, 15.20, 15.21, 15.22, 15.23, 15.24, 15.26, and 15.28. Seats and their attachments shall safely support a 250 pound continuous live load without sustaining permanent deflection. Seats shall not slip as mounted during use. In-tub seats may be portable;



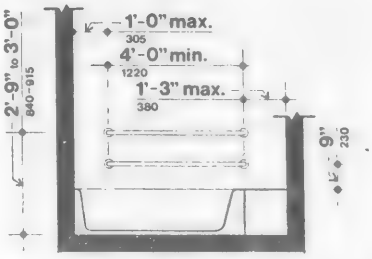
foot 15.19
scale: 1/4"=1'-0"



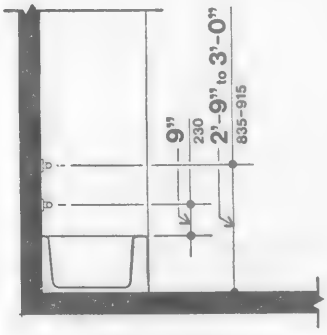
bathtub back 15.20
scale: 1/4"=1'-0"



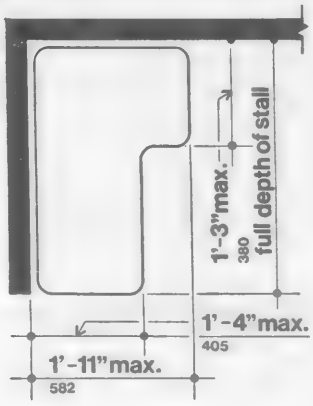
head 15.21
scale: 1/4"=1'-0"



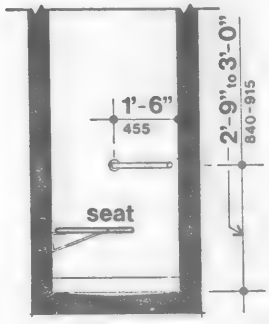
bathtub back 15.22
scale: 1/4"=1'-0"



head 15.23
scale: 1/4"=1'-0"

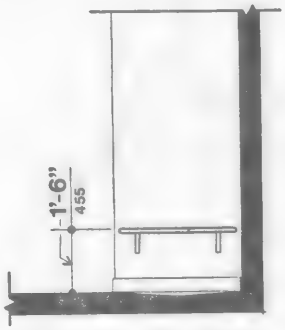


seat 15.26
scale: 1/2"=1'-0"

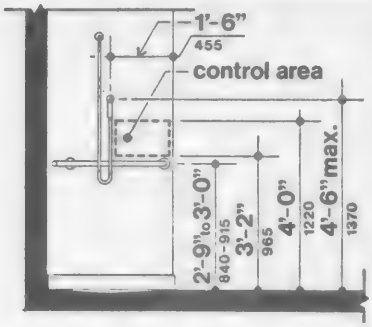


back 15.28
scale: 1/4"=1'-0"

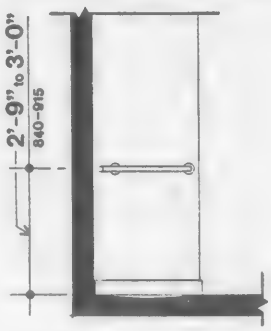
(iii) Have grab bars mounted of the length and positioning shown in figs. 15.16 to 15.23, and 15.24, 15.25, 15.28 to 15.32;



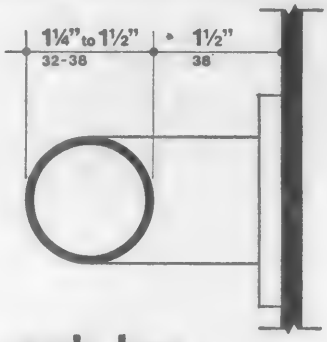
seat wall 15.27
scale: 1/4"=1'-0"



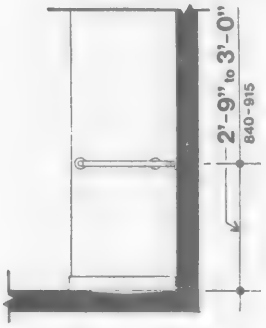
control wall (15.29)
scale: 1/4"= 1'-0"



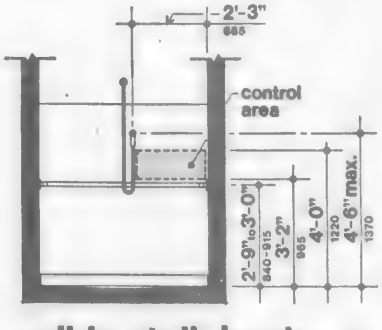
side (15.32)
scale: 1/4"= 1'-0"



grab bar (15.33)
scale: half



side (15.30)
scale: 1/4"= 1'-0"



roll-in stall: back (15.31)
scale: 1/4"= 1'-0"

(iv) Have faucets and controls complying with § 1190.170, Controls and Operating Mechanisms, located as shown in figs. 15.19, 15.29, and 15.31;

(v) Have a shower spray unit with a flexible hose a minimum of 5'–0" (1,525 mm) long for use as a fixed shower head or as a hand-held shower. (§ 1190.150(c) is similar to ANSI A117.1 (1980).)

(A) *Exception.* In unmonitored facilities where vandalism is a concern, a fixed shower head mounted at 4'–0" (1,200 mm) above the tub bottom may be used in lieu of the hand-held unit. (This provision is not in ANSI A117.1 (1980).)

(B) [Reserved]

(vi) Have enclosures, if provided, that do not obstract transfer from wheelchairs onto seats or into tubs or access to controls from clear access space. Bathtub enclosures shall not have tracks mounted on the bathtub rims. (This provision is similar to ANSI A117.1 (1980).)

(vii) Have no shower curbs or threshholds higher than ½ inch (13 mm) beveled. (This provision is different from ANSI A117.1 (1980).)

(d) *Grab bars.*—(1) *General.* Grab bars for accessible fixtures shall:

(i) Have a diameter or width of the gripping surfaces of a grab bar of 1¼ inches to 1½ inches (32 mm to 38 mm);

(ii) Be mounted adjacent to a wall or partition shall have a 1½ inch (38 mm) clearance between the bar and the mounting surface (fig. 15.33);

(iii) As installed, support a minimum concentrated load of 250 lbf (112N); and

(iv) Not rotate in their fittings.

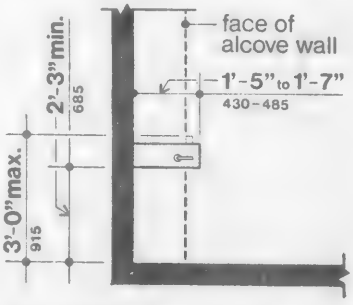
(§ 1190.150(d)(1) (i), (ii), (iii), and (iv) similar to ANSI A117.1 (1980).)

§ 1190.160 Drinking fountains and water coolers.

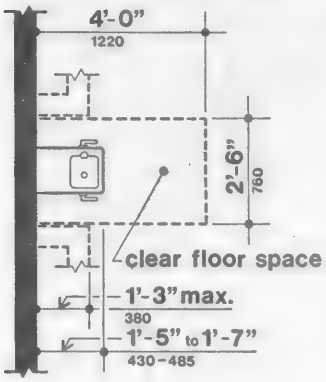
(a) *General.* Drinking fountains and coolers required by Subpart C—Scope, shall comply with this Section. (This provision is different from ANSI A117.1 (1980).)

(b) *Clearances.* Drinking fountains and water coolers shall have clear access spaces complying with § 1190.40, Human Data. (This provision is similar to ANSI A117.1 (1980).)

(1) Provide a wall- or post-mounted cantilevered unit with a forward approach access space and a knee space between the underside of the unit and the finish floor of at least 2'–3" (685 mm) high, 2'–6" (760 mm) wide, and 1'–7" (485 mm) deep. *See* figs. 16.1 and 16.2. (This provision is different from ANSI A117.1 (1980).)

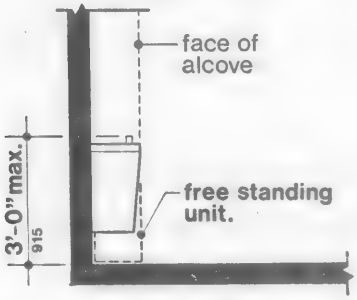


cantilevered (16.1)
scale: 1/4"= 1'-0"

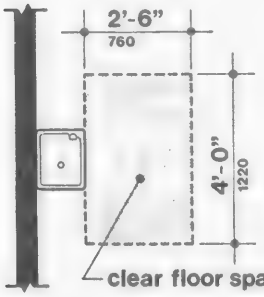


cantilevered 16.2
scale: 1/4"= 1'-0"

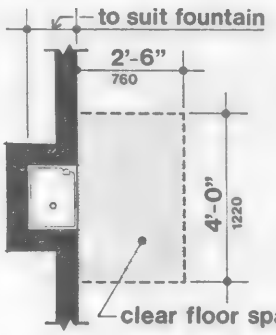
(2) Provide free-standing or built-in units not having knee-space with a clear access allowing a parallel approach (*see* figs. 16.3 and 16.4 and 16.5). (This provision is different from ANSI A117.1 (1980).)



free standing or wall hung 16.3
scale: 1/4"= 1'-0"



free standing or wall hung 16.4
scale: 1/4"= 1'-0"



built in 16.5
scale: 1/4"= 1'-0"

(c) Spouts of drinking fountains and water-coolers shall:

(1) Be mounted no higher than 3'–0" (915 mm) above the finish floor to the spout outlet;

(2) Be at the unit front and shall direct water flow trajectory parallel or nearly parallel the front of the unit; and

(3) Direct water flow at least 4 inches (100 mm) above the unit basin to facilitate cup or glass insertion.

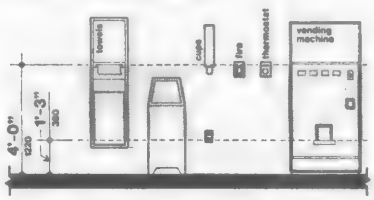
(§ 1190.160(c) (1), (2) and (3) are similar to ANSI A117.1 (1980))

(d) *Controls.* Unit controls shall be front mounted or side mounted near the front edge and shall comply with § 1190.170 Controls and Operating Mechanisms. (This provision is similar to 1ANSI A117.1 (1980).)

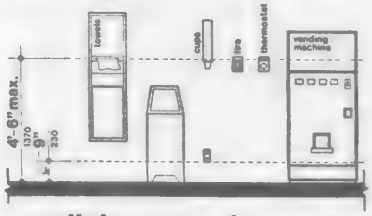
§ 1190.170 Controls and operating mechanisms.

(a) *General.* Controls and operating mechanisms required to be accessible by Subpart C—Scope, shall comply with this section. (This provision is similar to ANSI A117.1 (1980).1)

(b) *Location requirements.* Controls and operating mechanisms shall adjoin clear access space complying with § 1190.40, Human data. Mount controls and operating mechanisms in compliance with approach direction and reach limitations specified in §§ 1190.40(c), *Clear access space* and 1190.40(d) *Reach limitations. See* figures 17.1 and 17.2. (This provision is similar to ANSI A117.1 (1980).)



forward approach 17.1
scale: 1/4"= 1'-0"



parallel approach 17.2
scale: 1/4"= 1'-0"

(c) *Force.* Control activation shall require no more than 5 lbf (22.2 N) force. (This provision is similar to ANSI A117.1 (1980).)

(d) *Specialized equipment.* If specialized mechanical, electrical, or process equipment has inherent functional requirements which dictate location or force requirements other than those specified in this section, locate the equipment as dictated by its functional requirements. (This provision is not in ANSI A117.1 (1980).)

§ 1190.180 Alarms.

(a) *General.* If alarm systems are provided in the building or facility, they shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

(b) *Audible alarms.* Audible alarms shall produce a sound pressure level that exceeds ambient room or space noise by 15 decibels or any maximum noise level of 30 second duration by 5 decibels, whichever is greater. (This provision is similar to ANSI A117.1 (1980).)

(c) *Visual and other sensory alarms.* If audible alarms are provided, then provide, in addition, at least one of the following:

(1) A visual alarm device adjacent to each exist sign which flashes in conjunction with audible alarms. (This provision is similar to ANSI A117.1 (1980).)

(2) A flashing exist sign. (This provision is similar to ANSI A117.1 (1980).)

(3) Specialized systems utilizing advanced technology will be considered on a case-by-case basis under § 1190.180(c) (1) and (2). (This provision is not in ANSI A117.1 (1980).) Flash frequency of visual alarms shall not exceed 5 Hz. (This provision is similar to ANSI A117.1 (1980).)

(d) *Pull Stations.* Alarm pull stations shall comply with § 1190.170, controls and operating mechanisms. (This provision is not in ANSI A117.1 (1980).)

§ 1190.190 Tactile Warnings.

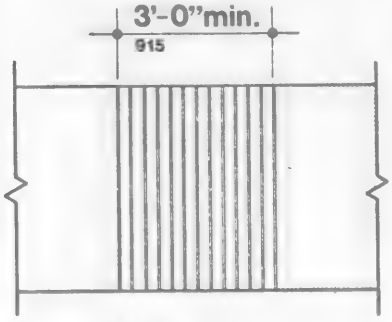
(a) *General.* Tactile warnings required by Subpart C—Scope, shall comply with

this section. Within any building, facility, or site textured surfaces used for tactile warnings shall be standardized. (This provision is different from ANSI A117.1 (1980).)

(b) *Ground and floor surfaces.* Tactile warnings on ground and floor surfaces shall:

(1) Contrast textures with surrounding surfaces;

(2) Comply with figure 19.1 when using raised strips or recessed groves;



tactile warnings
scale: 1/4"=1'-0"
19. 1

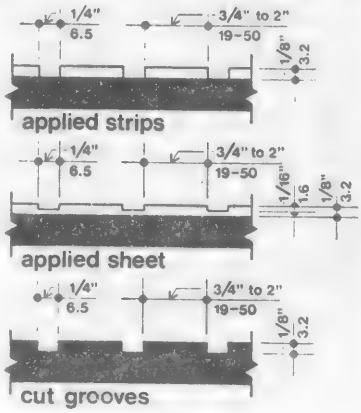
(3) Not have grooves that are recessed below adjoining surfaces on exterior surfaces; and

(4) Have surfaces, raised strips, or grooves that be made of exposed concrete, rubber, or plastic cushioned materials.

(§ 1190.190 (b) (1), (2), (3) and (4) are similar to ANSI A117.1 (1980).)

(c) *Hazardous areas.* Warn users of a hazardous area by means of a tactile warning if:

(1) A walk crosses or adjoins a frequently used vehicular way if there are no curbs, railings, planted areas, or similar boundary elements to separate the walk and the vehicular way (fig. 19.2); or



tactile warnings
scale: 3"=1'-0"
19. 2

(2) The edges of reflecting pools are not protected by railings, walls, or curbs.

(§ 1190.190(c) (1) and (2) are similar to ANSI A117.1 (1980))

(d) *Warnings at stairs.* (Reserved for future definition.) (This provision is different from ANSI A117.1 (1980).)

§ 1190.200 Signage.

(a) *General.* (1) Information and identification of elements and spaces as required by Subpart C—Scope shall comply with §§ 1190.200(b) *Character proportion and contrast* and 1190.200(e) *Symbol of accessibility.* Permanent signage identifying rooms and spaces shall also comply with paragraphs 1190.200(c) *Raised or incised characters* and 1190.200(d) *Mounting location and height.* (This provision is different from ANSI A117.1 (1980).)

(2) *Exception.* The provisions of § 1190.200 (c) and (d) are not mandatory for temporary information on room and space signage. (This provision is not in ANSI A117.1 (1980).)

(b) *Character proportion and contrast.* Letters and numbers on sign systems shall:

(1) Have a width-to-height ratio of between 3:5 and 1:1. (This provision is similar to ANSI A117.1 (1980).)

(2) Have a stroke width-to-height ratio of between 1:5 and 1:10. (This provision is similar to ANSI A117.1 (1980).)

(3) Contrast in value with their backgrounds, preferably light letters on a dark background. (This provision is different from ANSI A117.1 (1980).)

(4) Have a matte finish on a matte finish background. (This provision is not in ANSI A117.1 (1980).)

(c) *Raised or incised character.* Provide numbers and letters that are:

(1) Raised or incised from the background surface 1/32 in. (0.8 mm). Incise or raise symbols or pictographs in this manner;

(2) Between 5/8 in. (16 mm) and 2 in. (50 mm) high;

(3) Sans serif with sharply defined edges; and

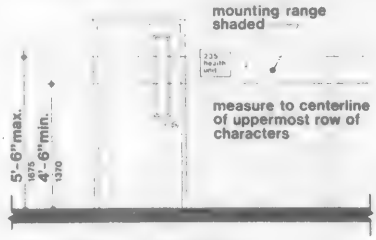
(4) If incised, provided with at least a 1/4 inch (6 mm) stroke width.

(§ 1190.220(c) (1), (2), (3), and (4) are similar to ANSI A117.1 (1980))

(d) *Mounting location and height.* Place interior signage in a standardized location througout a building or facility:

(1) Alongside of the door on the latch side, and

(2) Mounted at between 4'6" and 5'6" (1,370 mm and 1,675 mm) above finish floor (fig. 20.3).



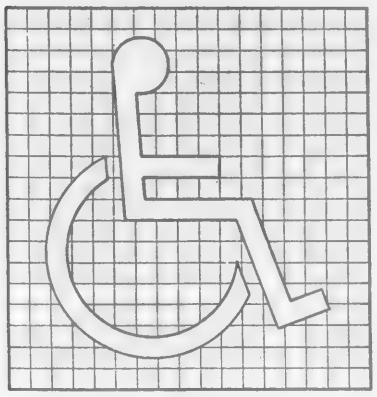
location & height
scale: 1/4"=1'-0"
20. 3

(3) Locate exterior signage at entrances and walks to direct individuals to accessible routes and entrances as required.

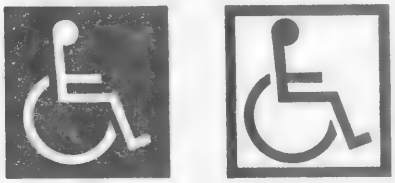
(§ 1190.200(d) (1), (2), and (3) are not in ANSI A117.1 (1980))

(e) *Symbol of accessibility.* Identify accessible facilities, as required by Subpart C—Scope, with the International Symbol of Accessiblity. Display as shown in fig. 20.1 and 20.2. Provide symbols of the following minimum dimensions:

Size	*Location*	*Viewing distance*
2½ in. (65 mm)	Interior	Up to 30 ft. (9 m).
4 in. (115 mm)	Interior	Greater than 30 ft. (9 m).
4 in. (115 mm)	Exterior	Up to 60 ft. (18 m).
8 in. (200 mm)	Exterior	Greater than 60 ft. (18 m).



international symbol
scale: to suit
20. 1



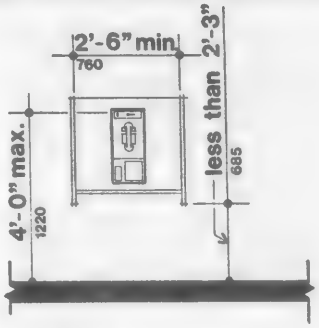
display condition
scale: to suit
20. 2

(This provision is different from ANSI A117.1 (1980))

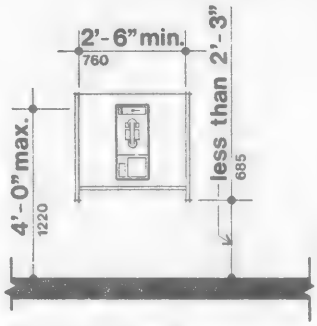
§ 1190.210 Telephones.

(a) *General.* Public telephones and related equipment required to be accessible by Subpart C—Scope, shall comply with this section. (This provision is similar to ANSI A117.1 (1980).)

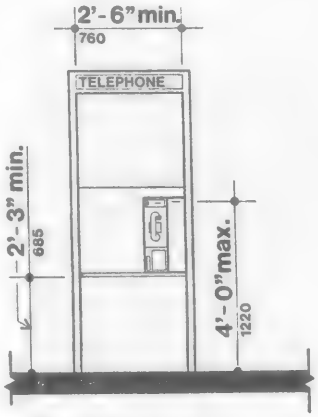
(b) *Clear access space.* A clear access space that complies with § 1190.40, Human data, shall be provided at each telephone (figs. 21.1, 21.2, and 21.3). Do not restrict clear access space by installation of bases, fixed seats, or enclosures. (This provision is similar to ANSI A117.1 (1980).)



side reach
scale: 1/4"= 1'-0"
21. 1



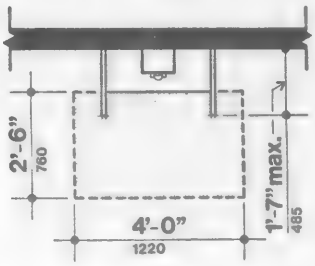
forward reach
scale: 1/4"= 1'-0"
21. 2



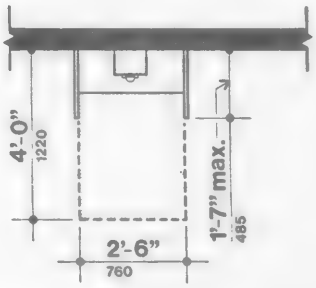
diagonal reach
scale: 1/4"= 1'-0"
21. 3

(c) *Equipment characteristics.* Telephone equipment shall:

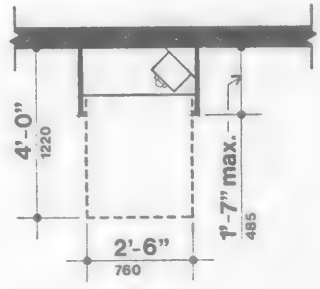
(1) Have the highest operable control, including, but not limited to dial and coin slot, located at a maximum of 4'–0" (1,220 mm) above the finish floor (figs. 21.4, 21.5, and 21.6). (This provision is different from ANSI A117.1 (1980).)



plan
scale: 1/4"= 1'-0"
21. 4



plan
scale: 1/4"= 1'-0"
21. 5



plan
scale: 1/4"= 1'-0"
21. 6

(2) Have push button controls, where service to such equipment is available. (This provision is similar to ANSI A117.1 (1980).)

(3) Have a minimum handset cord length of 2'–5" (735 mm). (This provision is similar to ANSI A117.1 (1980).)

(4) Have telephone books, if provided, located in a position usable by a physically handicapped person. *See* § 1190.40, Human data. (This provision is similar to ANSI A117.1 (1980).)

(d) *Equipment for hearing impaired people.* Telephone receivers shall generate a magnetic field in the area of the receiver cap. (This provision is similar to ANSI A117.1 (1980).) Volume controls and TDDs shall be provided in accordance with Subpart C—Scope. (This provision is not in ANSI A117.1 (1980).)

§ 1190.220 Seating, tables, and work surfaces.

(a) *General.* Fixed seating spaces, tables, or work surfaces required to be accessible by Subpart C—Scope, shall comply with this section. (This provision is different from ANSI A117.1 (1980).)

(b) *Clearances.* Seating spaces for people in wheelchairs at tables, counters, or work surfaces shall:

(1) Have a clear access space complying with § 1190.40, Human Data;

(2) Have knee spaces at least 2'–3" (685 mm) high, 2'–6" (760 mm) wide, and 1'–7" (485 mm) deep. Clear access space and knee space may overlap 1'–7"; and

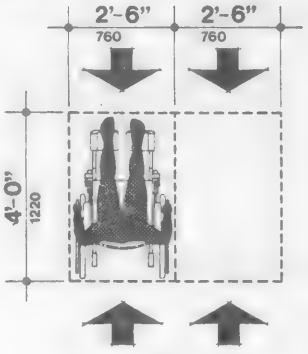
(3) Have table tops or work surfaces mounted between 2'–4" to 2'–10" (710 mm to 865 mm) above finish floor. (This provision is similar to ANSI A117.1 (1980).)

§ 1190.230 Assembly areas.

(a) *General.* Assembly areas required to be accessible by Subpart C—Scope, shall comply with this section. (This provision is different from ANSI A117.1 (1980).)

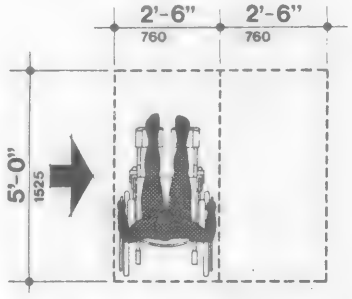
(b) *Size and location or viewing positions.* Accessible viewing positions shall:

(1) Provide minimum clear areas as shown in figs. 23.1 and 23.2. (This provision is similar to ANSI A117.1 (1980).)



viewing positions 23. 1

scale: 1/4"=1'-0"



viewing positions 23. 2

scale: 1/4"=1'-0"

(2) Accommodate one occupied wheelchair or one portable seat to accommodate persons with crutches or leg braces. (This provision is different from ANSI A117.1 (1980).)

(3) Be in an adjoining configuration if only two positions are provided. Additional positions may be in a single position configuration. (This provision is different from ANSI A117.1 (1980).)

(4) Be an integral part of the seating plan and shall be dispersed throughout the assembly area providing sight lines comparable to those for all seating. (This provision is similar to ANSI A117.1 (1980).)

(i) *Exception.* In alteration work where it is structurally impossible to alter seating locations to disperse seating throughout, seating may be located in collected areas as structurally feasible. Seating must adjoin an accessible route that also serves as a means of emergency egress. (This provision is not in ANSI A117.1 (1980).)

(5) Adjoin an accessible route of emergency egress as required by paragraph 1190.50(h) *Egress.* (This provision is similar to ANSI A117.1 (1980).)

(6) Have surfaces that comply with § 1190.50(i) *Ground and Floor surfaces.*

(c) *Performing areas.* Connect wheelchair viewing positions by an accessible route that complies with § 1190.50, Walks, floors, and accessible routes, to performing areas, including, but not limited to, stages, arena floors, dressing rooms, locker rooms, and other rooms and spaces required for use of the assembly area. (This provision is similar to ANSI A117.1 (1980).)

(i) *Exception.* In alteration work where it is structurally impracticable to alter all performing areas to be on an accessible route, at least one of each type shall be made accessible. (This provision is not in ANSI A117.1 (1980).)

(2) [Reserved]

(d) *Listening systems.* Provide assembly areas with a listening system to assist no fewer than two persons with severe hearing loss. (This provision is different from ANSI A117.1 (1980).)

(1) If the listening system serves individual seats, locate such seats within 50 feet (15 m) of the stage or arena. Such locations shall provide a complete view of the stage or arena. (This provision is similar to ANSI A117.1 (1980).)

(2) Acceptable types of listening systems include, but are not limited to, audio loops and radio frequency systems. (This provision is similar to ANSI A117.1 (1980).)

§ 1190.240 Storage.

(a) *General.* Storage facilities required to be accessible by Subpart C—Scope shall comply with this section.

(1) Provide a clear floor space complying with § 1190.40(d) *Reach limitations. (This provision is similar to ANSI A117.1 (1980).)*

(2) Provide storage space within the reach ranges specified in § 1190.40(d), *Reach limitations.* Mount clothes rods a maximum of 4'–6" (1,370 mm) above finish floor. (This provision is similar to ANSI A117.1 (1980).)

(3) Provide accessible hardware, in conformance with § 1190.170, Controls and operating mechanism.

Subpart E—Special Building or Facility Elements [Reserved]

Appendix A—Draft Regulatory Analysis Proposed ATBCB Minimum Guidelines and Requirements for Accessible Design; Architectural and Transportation Barriers Compliance Board

July 1980.

This analysis should be read in conjunction with the proposed rule and supplementary information as they provide specific details on the issues, explain many of the terms, and present background information on accessibility requirements. The draft analysis does not contain all of the supporting material used by the Board during the development of the rule. Requests for additional copies of the draft regulatory analysis or for an explanation of specific terms can be addressed to the Office of the General Counsel, Architectural and Transportation Barriers Compliance Board, 330 C Street, SW., Room 1010, Washington, D.C. 20202, ATTN: Charles D. Goldman, General Counsel, or Sally Free (202/245–1801 Voice or TDD).

Comments are welcome on all parts of this draft analysis. Based upon comments received and other information available to the Board, the analysis will be revised at the time of the final rulemaking.

Subpart A—General

I. Purpose and Scope of the Analysis

A. *Purpose.* Executive Order (E.O.) 12044, "Improving Government Regulations" (43 FR 12661, March 24, 1978), directs each Executive Agency to adopt procedures to improve existing and future government regulations. One of the provisions contained in that Order is that a "regulatory analysis" be prepared to examine and compare alternative approaches to regulating. The basic purpose of the analysis is to provide a decision-oriented document that explains and documents the bases of a regulatory decision through both descriptive and numerical comparisons. The draft regulatory analysis provides the basic background materials and alternatives necessary to allow the public a better opportunity to understand and participate in the selection of the most efficient and effective regulatory approach.

B. *Scope of the Analysis.* The draft regulatory analysis examines the statutory requirements, the alternatives available, and the scope of the guidelines. It specifically addresses the applicability of the guidelines to categories of buildings and facilities covered by the Act, the waiver and modification process, and the scoping requirements including those for new construction, additions, alterations, and leases. The regulatory analysis provides the background information for specific technical provisions of the guidelines including the scope, minimum requirements, and objective of each provision; summarizes relevent Board and public comments; highlights the unresolved and controversial issues; and presents the bases for the recommendations published in the Notice of Proposed Rulemaking (NPRM). Included in the draft analysis is an evaluation of the accessibility requirements for those building elements and site improvements typically contained in or around a public building or facility including horizontally and vertically accessible routes as well as emergency egress requirements; parking and passenger loading zones; ramps and curb ramps; stairs; handrails; elevators; lifts; entrances; doors; windows; toilet and bathing facilities; drinking fountains and water coolers; controls and operating mechanisms; alarms; tactile warnings ; signage; telephones; seating, tables, and working surfaces; assembly area; and storage. Dimensions and resource materials used in the development of the human data requirements are provided to give an understanding of the space and reach needs of the population requiring accessibility. Specific problems regarding those requirements are addressed under the relevant sections. The draft regulatory analysis also identifies the technical and scoping provisions that are similar to the *American National Standard Specification for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People,* ANSI A117.1–1980 (the ANSI Standard), that differ substantially from those provisions in the ANSI Standard, or that are found in the ATBCB guidelines but that are not contained in the ANSI Standard. The comparison was made in response to public comments on Question 31 of the Notice of Intent which asked if the ATBCB should adopt ANSI. Since a number of the commentors endorsed ANSI and found it a viable alternative to be considered in the regulatory process, the regulatory analysis highlights the similarities and differences so that the public can evaluate and compare the two approaches.

Based upon the criteria set forth in E.O. 12044 and from the information available to the Board at the time of publication of the NPRM, it does not appear that the proposed rule will result in any major economic consequences for the general economy, for individual industries, for geographic regions, or levels of government. Because the staff anticipates a number of questions concerning the costs of particular provisions, particularly on those paragraphs regarding the scope requirements, a number of questions have been prepared to request additional information from the standard-setting agencies on specific issues. For example, information is sought from the Department of Defense (DoD), the General Services Administration (GSA), the Department of Housing and Urban Development (HUD), and the United States Postal Service (USPS) to determine if the minimum guidelines will impose any additional costs on the Federal Government beyond those costs which currently exist as a result of agency, state, or private accessibility standards for new construction or alteration projects. Questions such as this one appear in the draft regulatory analysis under the heading "Additional Information Requested" for each section on which the additional information is sought. Responses to these questions from other Agencies and the public are welcomed and encouraged. So that the cost data is usable and comparable, please supply references to all background materials, source documents, and other information that provides the basis for the response. In addition, please refer to the section number, the title, and the question number in answering the questions.

An analysis of the economic consequences of a particular section will be provided in the final regulatory analysis if it appears that cost factors could significantly impact the economy, if it places a specific burden on a particular individual or section of the economy, or it it generates substantial controversy.

II. Applicability and Scope of the Guidelines

A. *Applicability: Buildings and facilities covered.* (1) Intended Use.

NPRM. The minimum guidelines apply to any building or facility (1) the intended use for which either (i) will required that such buildings or facility be accessible to the public, or (ii) may result in employment or residence therein of physically handicapped persons.

Legal Requirements. The Architectural Barriers Act (Public Law 90–480) of August 12, 1968, as amended (42 U.S.C. 4151 *et seq.*), defines "building" to include: any building or facility (other than (A) a privately owned residential structure not leased by the Government for subsidized housing programs and (B) any building or facility on a military installation designed and constructed primarily for use by able bodied military personnel) *the intended use for which either will require that such building or facility be accessible to the public, or may result in employment or residence therein of physically handicapped persons * * *. (Emphasis added.)*

(*Discussion.* Question 4 of the ATBCB Notice of Intent requested public comment concerning the criteria that should be used in determining if a building is one "intended for use * * * which * * * may result in employment or residence therein of physically handicapped persons." The majority of respondents to this issue believed that all buildings and facilities should be accessible with the possible exception of certain "special use" areas (*e.g.,* mechancial rooms, commercial kitchens). Board discussions reflected similar opinions.

(*Unresolved or Controversial Issues.* None.

Basis for Proposal. Based upon public and Board comments received, it is proposed that if there are buildings or facilities or portions thereof which by definition are not included under the Architectural Barriers Act's definition of building, the exception will be written into the guidelines under the appropriate section. In other cases, a determination will be made under the modification/waiver process.

(2)(i). "to be constructed or altered by or on behalf of the United States"

NPRM. The minimum guidelines define "constructed or altered on behalf of the United States" to mean "acquired by the United States through lease-purchase arrangements, constructed or altered for purchase by the United States, or constructed or altered for the use of the United States."

"Construction" is defined as "any erection of a new building or of an addition to an existing building."

Legal Requirements. A review of the legislative history of the Architectural Barriers Act (ABA), the relevant case law and the common meaning of the word "behalf," and the Federal Government's construction and alteration authority under other statutes indicates that Congress intended to include buildings and facilities constructed or altered by the United States (*i.e.,* with its own work force or through contractors) as well as those buildings and facilities constructed or altered "on behalf of" the United States.

Discussion.—Legislative history of the Architectural Barriers Act. The original Senate bill, S. 222, and the House bill, H.R. 6589, were identical and covered only buildings (A) "constructed *by* the Federal Government, or any department or agency thereof" or (B) "financed * * * with funds provided *by* a grant or loan made by the Federal Government or any department or agency thereof * * *." (Emphasis added.) During the conference on the bills, the legislation was changed to broaden the coverage of the Act to include "constructed or altered *by or on behalf of* the United States" (Architectural Barriers Act of 1968, 42 U.S.C. 4151). (Emphasis added.) This language implies coverage of buildings constructed through contracts to which the United States is not a party.

During the House hearings on the Act, Representative Gray asked Senator Barlett, the author and sponsor of S. 222, whether the language concerning buildings constructed by or on behalf of the Federal Government was "broad enough to take in the wide range of leasing arrangements that the Federal Government has with respect to Federal Government buildings." *Hearings on H.R. 6589 and S. 222 Before the Subcomm. on Public Buildings and Grounds of the House Comm. on Public Works,* 90th Cong., 2d Sess. 6 (1968). Senator Bartlett replied, "I should hope that the regulations of the General Services Administrator would make that abundantly clear. But if there is any doubt, sir, I would favor writing it into the language of the act." The final language of the Act included buildings "to be leased in whole or in part by the United States."

The evolution of the final version of the Act suggests that Congress intended (1) to include not only buildings constructed "by" the United States, but also a second category of buildings built by or on behalf of the United States, and (2) certain leased buildings (a category within the category of buildings constructed or altered by or on behalf of the United States but significant enough to merit clarification). Therefore, "on behalf of" means something other than "by," and it is a concept which includes leases as well as other arrangements.

Government Construction and Alteration Authority. The Public Buildings Act provides that, "No public building shall be constructed except by the (GSA) Administrator * * *" (40 U.S.C. 601). In addition, the Administrator is authorized to alter any building (40 U.S.C. 603). The Administrator's responsibilites under the Act, except for the alteration responsibility, are to be delegated to other agencies when the cost of the project does not exceed $100,000, and may be delegated in other instances (40 U.S.C. 614). The Administrator is authorized to carry out any construction or alteration by contract (40 U.S.C. 609). It is submitted that construction and alteration performed pursuant to these sections clearly would be construction and alteration "by the United States." The Department of Defense and the U.S. Postal Service have similar authority to construct and alter buildings (10 U.S.C. 2661, 2674, 2682; 39 U.S.C. 101, 401, 403, 404; H.R. Rep. No. 1787, 90th Cong., 2d Sess. 4 (1968)).

Furthermore, construction on behalf of the United States should include buildings constructed through purchase contracts. (For instances, a contractor erects a building "for the use of" the United States or to be purchased by the United States (*see* 40 U.S.C. 602a(e) and 356).) This form of acquisition was in existence in 1968 under 40 U.S.C. 356. The purchase contract authority under 40 U.S.C. 602a expired in 1975; it is unclear whether it otherwise continues to exist.

Unresolved or Controversial Issues. As used in § 1190.2 Applicability, how should the term "constructed or altered by * * * the United States" be defined?

Additional Information requested. 1. Each fiscal year, how many buildings and facilities subject to the minimum guidelines are purchased but not altered by the U.S. Government?

DoD———————
GSA———————
HUD———————
USPS———————

2. If these buildings and facilities were required to be altered by the U.S. Government to meet the minimum guidelines prior to occupany, what is the estimated annual costs that would be incurred by the Federal Government?

DoD———————
GSA———————
HUD———————
USPS———————

3. Each fiscal year, how many buildings and facilities are (a) acquired by the United States through lease-

purchase arrangements?; (b) constructed or altered for purchase by the United States?; or (c) constructed or altered for the use of the United States?

DoD (a)————; (b)————
(c)————
GSA (a)————; (b)————
(c)————
HUD (a)————; (b)————
(c)————
USPS (a)————; (b)————
(c)————

4. Based on the annual work plan, the scope provisions of § 1190.33 ALTERATIONS of the NPRM, and the costs presently incurred by the Federal Government to make buildings and facilities accessible, what is the estimated *annual* costs that will be incurred by the U.S. Government to bring

(a) Buildings or facilities acquired by the United States through lease-purchase arrangements into compliance with:

(i) Existing standards?

(ii) The proposed minimum guidelines?

(b) Buildings or facilities constructed or altered for purchase by the United States into compliance with:

(i) Existing standards?

(ii) The proposed minimum guidelines?

(c) Buildings or facilities for the use of the United States in compliance with:

(i) Existing standards?

(ii) The proposed minimum guidelines?

DoD (a)(i)——; (a)(ii)—— (b)(i)——; (b)(ii)——; (c)(i)——; (c)(ii)——
GSA (a)(i)——; (a)(ii)—— (b)(i)——; (b)(ii)——; (c)(i)——; (c)(ii)——
HUD (a)(i)——; (a)(ii)—— (b)(i)——; (b)(ii)——; (c)(i)——; (c)(ii)——
USPS (a)(i)——; (a)(ii)—— (b)(i)——; (b)(ii)——; (c)(i)——; (c)(ii)——

For each of the above questions, please supply any background material, source documents, and any other information that provided the basis for the response.

(2)(ii) To be leased in whole or in part by the United States.

NPRM

The minimum guidelines apply to buildings to be leased in whole or in part by the U.S. (i) after August 12, 1968, and before January 1, 1977, after construction or alteration in accordance with plans and specifications of the U.S., or (ii) on or after January 1, 1977, including any renewal of a lease entered into before January 1, 1977, which renewal is on or after such date. The guidelines do not apply to leases by recipients of Federal assistance. (*See* Memorandum for Drew S. Days, III, Assistant Attorney General, Civil Rights Division, Department of Justice, from the Office of Legal Counsel, May 8, 1980, Re: Architectural Barriers Act § 1, 42 U.S.C. 4151.)

Legal Requirements

The authority for leasing space for Federal Agencies is vested in the General Services Administration (GSA). Applicable GSA policies and procedures are found in the "Assignment and Utilization of Space in the Federal Property Management Regulations" (41 CFR 101–17). Under 41 CFR 101–17.102–1(a)(3), GSA performs all functions with respect to assignment and reassignment of space acquired by the Agencies through the leasing process. In specific cases, however, the Administrator of GSA may authorize other Agencies to perform these designated functions (41 CFR, 101–17.102–1).

Under the Economy Act (40 U.S.C. 278(a)), monies may be expended only for those premises occupied by the Government. Where the Government leases only a portion of a building, only that portion may be required to be accessible. The Government has the authority to require that the essential features be accessible and that an accessible route from the entrance to the leased portion of the building and to the essential features be provided. However, the U.S. Government is given no general authority to require an accessible route to other areas open to the public which are not otherwise occupied by a Federal entity, *e.g.*, common areas. Where the U.S. Government leases the entire structure, the Government may require such common areas to be accessible.

The only exception to this regulation is that where such access to common areas has been determined to be a valid space need for the agency (*e.g.*, a cafeteria in an otherwise remote location), then access to that common area can be provided (41 CFR Part 101, Chapter 12 and 18). It should be noted that the practical problem GSA encounters is that the lessor has often (especially in an existing building) leased the common area to another party, such as a shopkeeper or cafeteria operator.

Discussion

Because GSA leases the vast majority of Federal space, discussion by the Board centered on current GSA practices. Under the present GSA policy, the same specifications apply to building and facilities leased by the Federal Government as to those owned by the Government. This policy was supported by the public responses to Question 2 of the ATBCB Notice of Intent in which 22 of 40 respondents stated that the same standards should apply to leased buildings as apply to new construction. Only seven commentors felt that the standards for leased space should be less stringent; most of these cited cost considerations as the reason.

According to GSA, most of its leases are for a portion of a building or facility and do not involve the leasing of the entire building or facility. It is currently GSA's practice to attempt to lease an accessible route to those portions of the existing building it leases. However, GSA's leasing powers are limited, and the agency's leases do not always address such elements as entrances, elevators, and toilet rooms. GSA leases do not provide for access to privately owned spaces such as common areas (e.g., cafeterias) that are open to the public. GSA requires modifications or waivers only in cases where a lease is awarded to a firm other than the one offering the space that most nearly complies with the ANSI A117.1–1961 (R1971) standards; the modification/waiver is required for those leased elements or spaces that are not accessible but would have met the standards if the other space had been chosen (41 CFR 101–19.604(5)). Waivers are not required if accessible space is not available. All waivers must be approved by the Administrator. Public comments in response to Question 12 of the Notice of Intent were divided on GSA's general approach to the leasing of accessible space which permits that only selected requirements be met. Groups and organizations associated with the interests of handicapped persons felt that the Federal Government should foster accessibility and this can most effectively be accomplished by the Government requiring that leased space be accessible. Other groups, including a building code congress, a university, and a municipality, thought the GSA approach was reasonable. Most commentors also believed that the portion of the buildings leased should be made accessible, that an accessible route should be provided, and that common areas should be accessible.

According to GSA, it is not the accessibility requirements that increase cost to the Government in the leasing of a building; it is, instead, the multitude of other Federal requirements, such as those required by the *Occupational Safety and Health Agency* (OSHA), that increase the leasing costs to the Federal Government. As a result of these and

other factors not related to accessibility, GSA, as of January 1980, had a backlog in acquiring space of 10 million square feet. (*See Public Buildings Act of 1979, Hearings before the Senate Committee on Environment and Public Works*, 96th Cong., 2d Sess. 10 (1980).)

Unresolved or Controversial Issues

None.

Additional Information Requested

1. Each fiscal year, (a) how many new leases are entered into by the Federal Government in which the entire building or facility is leased? (b) Please indicate the gross number of square feet involved.

DoD (a)———; (b)———
GSA (a)———; (b)———
HUD (a)———; (b)———
USPS (a)———; (b)———

2. Each fiscal year, (a) how many new leases are entered into by the Federal Government in which a portion of the building or facility is leased? (b) Please indicate the gross number of square feet involved.

DoD (a)———; (b)———
GSA (a)———; (b)———
HUD (a)———; (b)———
USPS (a)———; (b)———

3. Each fiscal year, (a) how many new leases are renewed by the Federal Government in which the entire building or facility is leased? (b) Please indicate the gross number of square feet involved.

DoD (a)———; (b)———
GSA (a)———; (b)———
HUD (a)———; (b)———
USPS (a)———; (b)———

4. Each fiscal year, (1) how many leases are renewed by the Federal Government in which a portion of the building or facility is leased? (2) Please indicate the gross number of square feet involved.

DoD (a)———; (b)———
GSA (a)———; (b)———
HUD (a)———; (b)———
USPS (a)———; (b)———

5. Based on the annual work plan, the scope provisions of Subpart C, and the costs presently incurred by the Federal Government to make buildings and facilities accessible, what is the estimated *annual* cost that will be incurred by the U.S. Government and by the owners of leased buildings and facilities to bring each of the above categories of leased buildings and facilities into compliance (a) with the existing standards? (b) with the proposed minimum guidelines?

DoD: (a) ———; (b) ———
Owner: (a) ———; (b) ———
GSA: (a) ———; (b) ———
Owner: (a) ———; (b) ———
HUD: (a) ———; (b) ———
Owner: (a) ———; (b) ———
USPS: (a) ———; (b) ———
Owner: (a) ———; (b) ———

6. In general, is accessible space available for leasing?

DoD ———
GSA ———
HUD ———
USPS ———

For each of the above questions, please supply any background material, source documents, and any other information that provided the basis for the response.

(2)(iii) To be financed in whole or in part by a grant or loan made by the United States, if * * *

NPRM

The minimum guidelines apply to those buildings or facilities financed by Federal grants or loans if the law authorizing the grant or loan also authorizes the issuance of standards for design, construction, or alteration, even if, in its discretion, the Agency chooses not to issue or apply such standard.

Legal Requirements

Although the legislative history and the ABA clearly include buildings and facilities to be purchased and to be leased by the Federal Government if such buildings are constructed or altered in accordance with the plans and specifications of the U.S. Congress included no language in the Act that would cover buildings purchased or leased with grant or loan money if that money was not to be used to finance the construction or alteration of the building or facility. Therefore, the guidelines cannot legally require buildings or facilities to be accessible if that money was not to be used to finance construction or alteration of the building or facility.

The Department of Justice has agreed with the Board's opinion that the ABA covers those buildings for which standards are authorized even if they have not actually been imposed; however, Justice found that the Act does not extend to buildings leased by recipients of Federal grants or loans where the funds were not made available for building construction or alteration. (*See* Memorandum for Drew S. Days, III, Assistant Attorney General, Civil Rights Division, Department of Justice, from the Office of the Legal Counsel, May 8, 1980, Re: Architectural Barriers Act §1, 42 U.S.C. 4151.)

The ATBCB Office of the General Counsel has determined that buildings designed, constructed, or altered under the State and Local Assistance Act of 1972, Pub. L. 95–512, 31 U.S.C. 1221 *et seq.* (Revenue Sharing Act), are not to be considered covered by the Architectural Barriers Act. The opinion is based on the uniqueness of the Revenue Sharing Act and is concurred in by the Office of Revenue Sharing of the Office of the Treasury.

Discussion

The phrase "to be financed" is interpreted to include design, construction and alteration. The term "financed" can also encompass non-monetary considerations such as services of Federal personnel, guarantees, and insurance. (*See e.g.*, 29 U.S.C. 1701(a), 29 U.S.C. 276(c), and 29 U.S.C. 3.2(d).)

Unresolved or Controversial Issues

None.

Additional Information Requested

1. Each fiscal year, (a) how many buildings and facilities are financed by Federal grants and loans that are required to meet the accessibility requirements of the minimum guidelines. (b) Please indicate the gross number of square feet involved.

DoD (a)———; (b)———
GSA (a)———; (b)———
HUD (a)———; (b)———
USPS (a)———; (b)———

2. Based on the annual work plan, the scope provisions of Subpart C, and the costs presently incurred by the Federal Government to make buildings and facilities accessible, what is the estimated *annual* cost that will be incurred by:

(a) The U.S. Government to bring these buildings and facilities into compliance with existing standards?

(b) The U.S. Government to bring these buildings and facilities into compliance with the proposed minimum guidelines?

(c) State and local governments and private parties to bring these buildings and facilities into compliance with existing standards?

(d) State and local governments and private parties to bring these into compliance with the proposed minimum guidelines?

DOD (a) ———; (b) ———; (c) ———; (d) ———
GSA (a) ———; (b) ———; (c) ———; (d) ———
HUD (a) ———; (b) ———; (c) ———; (d) ———
USPS (a) ———; (b) ———; (c) ———; (d) ———

For each of the above questions, please supply any background material,

source documents, and any other information that provided the basis for the response.

Subpart B—Waivers and Modifications: Processed Departures

NPRM

Waivers and modifications may be issued on a case-by-case basis by the head of each standard-setting agency if the conditions are met which are set forth in Subpart B of the Minimum Guidelines.

Legal Requirements

The Architectural Barriers Act directs the standard-setting agencies "to insure *whenever possible* that physically handicapped persons * * * have ready access to * * * buildings." (Emphasis added.) (42 U.S.C. 4152.) Section 6 of the Act, in addition, authorizes the head of each of the four standard-setting agencies to modify or waive their respective standards if:

1. The application for a waiver and/or modification is made by the head of the concerned department, agency, or instrumentality of the United States;
2. The application is made on a case-by-case basis; and
3. The Administrator or Secretary makes a determination that such a modification or waiver is necessary.

(*See* Architectural Barriers Act, Pub. L. 90–480, of August 12, 1968, as amended, 42 U.S.C., 4151 *et seq.*)

The 1978 amendments to the Rehabilitation Act of 1973 provide the ATBCB with express responsibilities for waivers and modifications:

> Section 502(b). It shall be the function of the Board to: (1) insure compliance with the standards prescribed pursuant to the Act * * * including * * * insuring that all waivers and modifications of standards are based upon findings of fact and are not inconsistent with the provisions of such Act and this section * * *.

Discussion

Because the 1976 Act was amended to include the wording "whenever possible," this phrase should be read in the context of waivers and modifications, standards of access, the purpose of the Act, and other 1976 amendments to the Act. Although the phrase does not have a precise legal definition and has been interpreted by the courts to have a variety of meanings, the phrase, "whenever possible," when read in context with the other amendments to the Act and in light of the Congress' clear intent to strengthen the Act by limiting agency discretion, can only be interpreted to limit the agencies' discretion and to imply narrow grounds for exceptions.

Consultation by the ATBCB staff with representatives from the four Federal standard-setting agencies confirmed that in practice a "waiver to the standard" and "a modification to the standard" have distinct requirements, although the process used to approve waivers and modifications are the same. The following definitions were written based on the four agencies' interpretation of "waiver" and "modifications":

> "Modification" means an official act in accordance with the provisions of the Architectural Barriers Act to permit design, construction, alteration, or lease of a building without strict compliance with a particular provision of a guideline or standard.
>
> "Waiver" means an official act in accordance with the Architectural Barriers Act to: (1) Exempt an entire building or facility from all requirements of a standard; or (2) Exempt an entire building or facility, or portion of a building or facility, from the requirements of a standard with respect to a specific element or space.

Defining the term "modification" required the Board to address the concept of "equivalent facilitation." This term had already been addressed to a certain extent by ANSI A117.1 (1961), GSA, and some state codes which permitted modifications where a substitute method achieved equivalent access. In legal briefs filed in connection with various administrative proceedings, it has been the ATBCB's position that the law and the standard require more than mere access for disabled persons. The law mandates that access and use be provided that is substantially equivalent to that afforded able-bodied persons in such respects as ease, convenience, dignity and independence. This interpretation is supported by the legislative history of the Architectural Barriers Act and principles of statutory interpretation. (*See* Memorandum of Points and Authority in Support of Executive Director's Motion for Judgment On The Record, In re Compliance, Union Station, Washington, D.C. 3–77–1, Memorandum of Points and Authorities In Support of the Executive Director's Motion for Partial Summary Judgment, In re Compliance Southeastern Program Center, Birmingham, Alabama, 6–77–2.)

A definition of equivalent facilitation was, therefore, developed to build on this legal interpretation:

> "Equivalent facilitation" means access or use which is, in terms of performance, dignity, convenience, and independence, at least substantially equal to or better than that required under the guideline or a standard.

Equivalent facilitation was also addressed in the ANSI A117.1961 (R1971):

> In cases of practical difficulty, unnecessary hardship, or extreme differences, administrative authorities may grant exceptions from the literal requirements of this standard or permit the use of other methods or materials, but only when it is clearly evident that equivalent facilitation and protection are thereby secured. (Emphasis added.)

The ANSI A117.1–1980 does not define or make reference to equivalent facilitation nor does it address the issue of waivers and modifications.

Unresolved or Controversial Issues

None.

Basis for Proposal

The specific situations for a waiver or modification were developed from public comments in response to Questions 15, 16, 17, and 18 of the Notice of Intent, from existing policies regarding waivers and modifications, and from Board discussions. In general, there was consensus that the need for a waiver or modification may arise in the following situations: (1) Safety or security; (2) undue hardships; (3) limitations imposed by legislation other than the Architectural Barriers Act; and (4) structural impracticability. The ATBCB also recognized the need to provide a modification process which would allow designers, builders, and implementing agencies an opportunity to present the Board with alternative methods of providing accessibility that are not specifically contained in the gudelines. It was further recognized that some alteration projects may require special consideration because the application of the standard would be structurally impracticable. As a result of discussions, the Board developed additional requirements for modifications (*See* § 1190.23 and the supplementary information discussion of this topic.)

Subpart C—Scope

§ 1190.31 Accessible Buildings and Facilities: New Construction

NPRM

All new buildings and facilities shall comply with the minimum requirements set forth in § 1190.31

Legal Requirements

The Architectural Barriers Act (Pub. L. 90–480), as amended, directs the standard-setting agencies to "prescribe standards for the design, construction and alterations of buildings * * * to insure whenever possible that

physically handicapped persons will have ready access to, and use of, such buildings."

The ABA requires four agencies—the General Services Administration; the Department of Housing and Urban Development; the Department of Defense; and the United States Postal Service—to establish standards for accessibility. Buildings subject to the Act must conform to those standards (42 U.S.C. 4251–4256).

The ATBCB was established by Section 502 of the Rehabilitation Act of 1973, Pub. L. 93–112, to ensure compliance with standards issued under the Architectural Barriers Act.

The Rehabilitation Act Amendments of 1978, Pub. L. 95–602, amended Section 502 of the Rehabilitation Act of 1973, 29 U.S.C. 792, to read:

(b) It shall be the function of the Board to * * * (7) establish minimum guidelines and requirements for the standards pursuant to * * * the Architectural Barriers Act of 1968 (ABA).

Discussion

It is clear from the legislative history of the Architectural Barriers Act of 1968 (Pub. L. 90–480) that the intent of Congress was to make public buildings meet a high standard of accessibility. The operative language of the Act (42 U.S.C. 4156) requires that certain buildings be designed, constructed, or altered in accordance with the standards set by the three agencies. (The 1976 amendments to the Act added a fourth standard-setting agency: the United States Postal Service.) The sections relating to the establishment of standards (42 U.S.C. 4152–54) *authorized* the three agencies to "prescribe such standards for the design, construction, and alteration of buildings * * * *as may be necessary* to ensure that physically handicapped persons will have ready access to, and use of, such buildings." (Emphasis added.)

In response to a GAO report, *Further Action Needed to Make Buildings Accessible to Handicapped Persons* (July 1975), the Act was amended in 1976 to require agencies to issue standards "to ensure whenever possible that physically handicapped persons will have ready access * * *" (Pub. L. 95–541). This amendment, therefore, eliminated the agencies' discretion to choose not to issue standards. Congress provided the standard-setting agencies and the ATBCB with wide discretion in establishing standards to implement the purpose of the Act.

Public comments, in response to the Board discussions, the 1975 GAO report, ATBCB Notice of Intent Question 4, and research supports the NPRM recommendation to require that all new buildings and facilities be fully accessible. The HUD research report, "The Estimated Cost of Accessible Buildings," found that the cost for designing for accessibility from the beginning, "amounts to less than 1% of the total construction cost." The cost study examples provided in the report underscored the importance of accessibility and found that if a building or facility is designed for accessibility it generally provides improved pedestrian circulation routes for everyone, not just the handicapped, and does not necessarily increase the overall square footage of the building.

Alternatives Considered

The following alternatives were considered by the Board in their discussions concerning the number of particular elements that should be required:

Alternative 1: A number or percentage should be specified;

Alternative 2: The standard should require a "reasonable number" or "appropriate number"; or

Alternative 3: The standard should require a reasonable number or appropriate number and specify a minimum number.

Discussion

The ANSI A117.1–1980 specifications require that if a particular element is required, then at least one accessible element of that particular type is to be provided. It is recommended by the ANSI A117.1 Committee that the administrative authority adopting this standard should specify reasonable numbers or should establish procedures for determining them. Factors which ANSI recommends using to determine the actual number of elements to be provided include:

(1) Population to be served;

(2) Availability to occupants;

(3) Distances and times required to use the accessible elements; and

(4) Provisions of equal opportunity and treatment under law.

The ATBCB guidelines as published in the NPRM and the ANSI specifications are similar except for the following:

(1) Parking spaces: The ATBCB proposes that if parking is provided, the number of accessible parking spaces shall comply with the table provided; ANSI recommends a reasonable number, but always at least one accessible space comply with the appropriate section if parking is provided.

(2) Elevators: The ATBCB proposes to require a pasenger elevator for multi-story buildings unless another means of vertical access is provided. ANSI simply requires that if passenger elevators are provided, each shall comply with the appropriate section. The ATBCB also excepts elevator pits, elevator penthouses, mechanical rooms, and piping or equipment catwalks from the guidelines. Each elevator is required to be accessible in a bank because the typical call or summons technique used in bank operation generally does not discriminate as to which elevator is summoned. In general, it summons the closest elevator traveling in the desired direction. If there were only one elevator per bank that was accessible and this summons technique was employed, it could conceivably result in a situation whereby a handicapped person might have to wait a considerable length of time before the accessible elevator arrived.

(3) Platform Lifts: The ATBCB proposes to permit the use of platform lifts as a means o vertical access; ANSI permits them only if other alternatives are not feasible.

(4) Entrances: The ATBCB proposes that each entrance shall be accessible; ANSI recommends a reasonable number but always at least one of the principal entrances be accessible.

(5) Toilet and Bathing Facilities: The ATBCB proposes that each be accessible; ANSI recommends a reasonable number, but always at least one.

(6) Assembly Areas: The ATBCB proposes that if assembly areas are provided, the number of accessible viewing positions shall comply with the table provided; ANSI recommends only that a reasonable number but no less than two shall comply with the appropriate section if assembly areas are provided. The ATBCB also proposes to require listening systems to assist no fewer than two persons with a severe hearing loss. Listening systems are not mandatory in the ANSI Standard.

(7) Dwelling Units: The ATBCB proposes to reserve this section for future rulemaking; ANSI now recommends specific criteria.

Comments to the ATBCB Notice of Intent Question 29 were divided on the issue of requiring either a "specific number" or a "reasonable number." Consumers generally believed that the "reasonable number" approach would be appropriate. The enforcement organizations, on the other hand, felt that the "reasonable number" approach would be impossible to enforce and it would eventually be the courts that would decide the definition of a "reasonable number." (For additional information on the deliberation of this issue, *see* the Minutes of the Technical

Standards Committee, Tuesday, April 29, 1980. pp. 8–9.)

Unresolved or Controversial Issues

a. Should parking facilities be required at all new buildings and facilities?

b. Should each door at each entrance be required to comply with § 1190.130 Doors?

Additional Information Requested

1. Parking and Passenger Loading Zones:

a. Each fiscal year, how many buildings or facilities are constructed by or on behalf of the U.S. Government that do not provide any parking facilities?

b. If parking facilities were required at newly constructed buildings or facilities that would not otherwise provide these spaces, what would be the additional cost per space as proposed by § 1190.60 Parking and Passenger Loading Zones in the NPRM?

DOD (a) ———; (b) ———
GSA (a) ———; (b) ———
HUD (a) ———; (b) ———
USPS (a) ———; (b) ———

2. Elevators:

a. Each fiscal year, how many multi-story buildings or facilities are constructed by or on behalf of the U.S. Government that would require the installation of elevators under the accessibility requirements of the NRPM that would otherwise not be provided?

b. If these elevators are required, what will be the total annual cost by fiscal year to provide these additional elevators?

DoD (a) ———; (b) ———
GSA (a) ———; (b) ———
HUD (a) ———; (b) ———
USPS (a) ———; (b) ———

3. Entrances:

a. Estimate the number of additional entrances that will be required to be accessible as a result of the proposed paragraph § 1190.31(h) Entrances that otherwise would not be made accessible.

b. If these "extra" entrances are required to be accessible, what will be the additional cost per fiscal year to make these entrances accessible?

DoD (a) ———; (b) ———
GSA (a) ———; (b) ———
HUD (a) ———; (b) ———
USPS (a) ———; (b) ———

4. Doors:

a. If each door at each entrance is required to comply with § 1190.130 rather than only one door at each entrance being required to comply, what will be the total cost per fiscal year to make these additional doors accessible?

DoD (a) ———; (b) ———
GSA (a) ———; (b) ———
HUD (a) ———; (b) ———
USPS (a) ———; (b) ———

5. Toilet and Bathing Facilities:

a. What will be the total cost per fiscal year to require that each toilet and bathing facility in a newly constructed building or facility comply with § 1190.150 Toilet and Bathing Facilities?

b. What is the total cost per fiscal year to require that one toilet and bathing facility for each sex per floor in a newly constructed building or facility comply with § 1190.150 Toilet and Bathing Facilities?

DoD (a) ———; (b) ———
GSA (a) ———; (b) ———
HUD (a) ———; (b) ———
USPS (a) ———; (b) ———

Basis for Proposal

It was decided that architects and designers need to be given precise requirements so that they can better anticipate the design requirements of the building. It was also determined that unless specific numbers were incorporated into the standard, enforcement of the standard would be difficult if not impossible. Moreover, without specific numbers, the minimum numbers would be determined on a case-by-case basis, hence destroying any semblance of uniform requirements. the Board considered each element before establishing specific numbers. Building code requirements, costs and existing State and Federal accessibility requirements were relied upon in making the proposal for the NPRM. For information on a specific number or minimum number proposed by the Board, *see* the relevant section of the regulatory analysis.

§ 1190..32 Accessible Buildings and Facilities: Additions

NPRM

Each addition to an existing building or facility shall comply with § 1190.31 New Construction except for the requirements regarding entrances; accessible routes; and elements, essential features, and common areas. These provisions shall comply with § 1190.32 Additions of the minimum guidelines.

Legal Requirements

See § 1190.31 Accessible Buildings and Facilities: New Construction and § 1190.2 Applicability, paragraph (2)(i) "To be Constructed or Altered By or on Behalf of the United States."

Discussion

Based on the expressed intent of Congress to include a wide range of buildings under the category of buildings constructed or altered "on behalf of the United States," the term "building" or "facility" is defined as:

> All or any portion of buildings, structures, equipment; roads, walks, parking lots, parks, sites, or other real property or interest in such property.

The definition is further refined by defining "construction" to mean:

> Any erection of a new building or *of an addition to* an existing building. [Emphasis added.]

The intent of the Architectural Barriers Act is that as a building or a portion of a building is constructed, the new construction is to be completed in compliance with the applicable standards. The Architectural Barriers Act and its legislative history do not provide any clear guidance as to what extent an existing building or facility must be made accessible when an addition is made to that structure. At one point, Representative Gray, a co-manager of the legislation, suggested that in the case of an addition of an annex to a postal facility, the entire facility should be made accessible. (*House Hearings on H.R. 6589 and S. 222,* Subcomm. on Public Buildings and Grounds of the House Comm. on Public Works), 90th Cong., 1st Sess. 6 (1968). In light of these remarks, the Act may be interpreted to require that the addition must be accessible and comply with the requirements for new construction. Moreover, if elements and spaces are not provided in the addition, essential features such as entrances, accessible routes, and toilet and bathing facilities, and the like must be made accessible in the existing building. However, the Act and the legislative history do not provide any rationale for an interpretation that would require the entire existing building to be made accessible. Public comments to question 7 of the Notice of Intent support this interpretation. The overwhelming majority of respondents believed that the addition should be made accessible in accordance with the minimum guidelines and that common areas and essential features of the existing building should be accessible if these elements and spaces were not also located in the addition.

Unresolved Issues

None.

Basis for Proposal

The legal requirements and legislative history provided the bases for the NPRM. Public comments and Board deliberations were also considered.

§ 1190.33 Accessible Buildings and Facilities: Alterations

NPRM

Alterations to existing buildings and facilities shall comply with § 1190.33 Alterations of the minimum guidelines.

Legal Requirements

The Architectural Barriers Act requires that buildings and facilities altered by the Federal Government or with Federal financial assistance must be altered in accordance with the standards prescribed under the Act. 42 U.S.C. 4151 and 4155. *See also* Regulatory Analysis, § 1190.2: Applicability, paragraph (2)(i) "To Be Constructed or Altered By or On Behalf of the United States."

Discussion

The Architectural Barriers Act and its legislative history clearly demonstrate that the Congress intended the Act to cover alterations to existing buildings and facilities and that is is the Federal Government's responsibility to ensure that alterations to these buildings be barrier free and completed in compliance with the applicable standards. The Act and its legislative history do not provide clear guidance as to the extent other parts of an existing building must be brought into compliance when alterations are made to a portion of the building or facility. The Act also does not provide a definition of what is included or not included under the term "alteration."

It was, therefore, necessary for the Board to define the extent of coverage included within the meaning of alteration. In order to make this determination, the ATBCB examined the scope requirements and definitions of "alteration" used by state and Federal agencies. It was found that compliance for alteration was mandated in one of three ways:

Alternative 1: By definition. That is, specific elements and spaces, if altered, would be required to be brough into compliance.

Alternative 2: By the percentage of the construction cost of the alteration to the building's value. That is, the full and fair cash value of the building or facility would be determined before work commenced and the cost of the alteration would be expressed as a percentage of that value.

Alternative 3: By percentage of the gross square footage of the portion of the building to be altered to the gross square footage of the entire building. That is, it would be similar to alternative 2 except that square footage rather than cost would be the determining factor for compliance.

Each of the alternatives has inherent strengths and weaknesses. Alternative 1, the definition approach, has the weakness that it does not provide a coordinated approach to the accessibility requirements of the building or facility as a whole. Since only the particular element or space being worked on would be corrected during the alteration project, linking features may be omitted and thus even basic accessibility may not be achieved. Its advantages are ease of application and low cost.

Alternatives 2 and 3 are similar in that they provide a coordinated accessibility approach for the entire building or facility. The difficulty with Alternative 2 is that a building's value may be determined prior to design, however, accurate construction costs are available only at the bid opening—this may be too late to change the scope of a particular project.

In addition to defining the extent of coverage for work involving alterations, it was also necessary for the Board to define the term "alteration." To develop this definition, the Board compared the definitions used by a number of Federal and state agencies. Most definitions of alteration included the words, "remodeling," "renovation," "retrofitting," and "rehabilitation." Several included "repairs and maintenance." The concepts of "addition" and "historic preservation" were not included in the definitions because these terms have vastly different implications than alteration. For example, an addition to a building or facility involves new construction as opposed to work taking place within an existing building; historic preservation, on the other hand, includes the constraints of "visual authenticity" as well as structural difficulties that are not usually present in routine alteration work. (*See* the definitions used by New Jersey, Massachusetts, Rhode Island, Illinois, Washington, DoD, HUD, GSA, and USPS.)

Unresolved or Controversial Issues

a. Public comment is invited on the "50 percent criteria"—floor space or full and fair cash value—for treating significant alterations as new construction and thus requiring full access throughout the entire structure.

b. The ATBCB also highlights the question of whether it should, as a matter of policy, require an accessible means of vertical access where an escalator is contemplated to replace an existing excalator.

Alternatives

Based upon a review of the legislative history and the requirements of the Act, the Board determined that the following alternatives or combinations thereof were available in proposing a policy for alteration work:

Alternative 1. All alteration work must comply with the standards.

Alternative 2. The space or area in which the alteration work is completed must be altered to comply with the standards.

Alternative 3. The altered element, space or area, and a path to it must be altered to comply with the standards.

Alternative 4. The entire building must be altered to comply with the standards.

The first alternative would require that if a toilet stall in a toilet facility is remodeled, the stall would have to meet the standards. Using the same example, the second alternative would require that other stalls and possibly the entire toilet facility would have to meet the standards. Under the third alternative, there would have to be an accessible route from an accessible entrance to the stall. The fourth alternative would require the entire building to comply with the standards. The rationale for alternatives 2–4 is that there would be little purpose in having the stall accessible to the physically handicapped if the building itself is not accessible.

Costs

The HUD study "Estimated Cost of Accessible Buildings" found that alteration costs for existing buildings ranged from .1% to over 16% above original construction costs. The cost-estimating procedure and the resulting estimates of this study did not take into account that there would be costs incurred by the alteration even if barriers were not removed. It assumed instead that the alteration work was being undertaken to eliminate architectural barriers and not for any other purpose. In general, the ABA does not require that alterations be made exclusively for the purpose of gaining accessibility; instead, the ACT requires that when alterations are made, then these alterations should be accessible. As a result, the figures in the HUD study may not be realistic. Other studies that were reviewed suffered from similar deficiencies.

Additional Information Requested

1. Based on the annual work plan, the scope provisions of § 1190.33 Alterations and costs presently incurred by the Federal Government, state and local governments, and the private sector to

make buildings and facilities accessible, what is the estimated annual cost for accessibility that will be incurred by the U.S. Government, state and local governments, and the private sector if:

(a) Only those elements, spaces, essential features, or common areas altered are brough into compliance with the minimum guidelines?

(b) In addition to (a) above, the space or area in which the alteration work is located must be brough into compliance with the minimum guidelines.

(c) In addition to (a) and (b) above, and accessible path from the entrance to the altered space must be brough into compliance with the minimum guidelines.

(d) In addition to (a), (b), and (c) above, the entire building must be brought into compliance with the minimum guidelines.

DoD (a)———; (b)———; (c)———; (d)———

GSA (a)———; (b)———; (c)———; (d)———

HUD (a)———; (b)———; (c)———; (d)———

USPS (a)———; (b)———; (c)———; (d)———

State and local governments (a)———; (b)———; (c)———; (d)———

Private sector (a)———; (b)———; (c)———; (d)———

For each of the above questions, please supply any background material and documentation that provides the basis for the response. Cost estimates should not include the cost of work that would be required for the alteration if there were not requirements for accessibility.

Basis for Proposal. There was general agreement among those who commented on question 6 of the Notice of Intent that there should be a point at which extensive alterations should trigger a requirement that the entire building be brought into compliance with the standards. It also was recommended by a majority of the public commentors in their responses to question 5 that if alteration work, including work related to maintenance or repair, presents an opportunity to provide accessibility, that work should comply with the standards. In response to question 7 of the Notice of Intent, commentors answered that the altered portion of the building should be accessible and that an accessible route should be provided to the essential features and to the altered portion of the building.

It was also determined, based on the legislative history and the law, that it was legally permissible to set a point at which the extent of alteration is such that it amounted to new construction; defining that point is a policy matter. It is also legally permissible to exclude maintenance work such as cosmetic work from the definition of alteration.

A review of building codes and other accessibility requirements found that both 50% of the floor space and 50% of the full and fair market value are used to require building owners to bring a building into compliance with a standard. (*See* the Uniform Building Code, Southern Building Code, and the New Jersey, Massachusetts, Rhode Island, and Illinois state codes.)

As a result of the above findings, the Board recommends that a policy which combines the various requirements discussed above be used. The proposal in the NPRM uses a combination of the definition and percentage of floor space and costs alternatives to determine the elements and spaces required to be altered to comply with the minimum requirements.

§ *1190.34 Accessible Buildings and Facilities: Leased*

NPRM. Buildings or facilities or portions thereof leased by the Federal Government shall comply with the requirements of § 1190.31 New Construction, § 1190.32 Additions, and § 1190.33 Alterations, and with § 1190.34 Leased.

Legal Requirements. See paragraph (2)(ii) "To Be Leased in Whole or in Part by the United States."

Discussion. See paragraph (2)(ii) "To Be Leased in Whole or in Part by the United States."

Basis for Proposal. See paragraph (2)(ii) "To Be Leased in Whole or in Part by the United States."

Subpart D—Technical Revisions

§ *1190.40 Human Data*

(a) *General.—Scope.* The space and reach requirements for the physically handicapped specified in § 1190.40 Human Data are based upon the space requirements and reach ranges of an adult seated in a manually operated wheelchair. Because available data indicates a wide variation in physical attributes and abilities among the handicapped population, it is recognized that many persons, particularly those who lack trunk control and those who have severe reach restrictions, may not be able to accomplish all movements and tasks within these ranges. Disabilities which are considered beyond the scope of the minimum guidelines are those of non-physical nature (*e.g.,* learning disabilities and mental retardation). The space and reach ranges of children were not constructed for these guidelines.

Objective. To provide the minimum space and reach requirements necessary for adults who use wheelchairs or walking aids to negotiate a path of travel and to operate controls and equipment located within accessible spaces.

Unresolved or Controversial Issues. Should the minimum guidelines accommodate the manipulation and maneuvering skills of *all* physically handicapped persons living outside of institutions or should the guidelines be limited to the accommodation of specific categories of disabilities?

Basis for Proposal. The technical specifications reflect those used in state codes as well as the research conducted by Dr. Edward Steinfeld while under contract to the Department of Housing and Urban Development (HUD). The provisions of § 1190.40 Human Data are similar to the ANSI A117.1–1980 edition except for § 1190.40(d)(3) of the NPRM which recognizes that some equipment may be required to be placed in a certain location in order for it to function properly and, as a result, may be located outside of the measurement requirements for this section.

(b) *Moving Wheelchair Clearances.* The FHWA report, "Provisions for Elderly and Handicapped Pedestrians: Volume I" (Report No. FHWA–RD—79—1), provides the following static space requirements for a wheelchair:

Length: 83% of all wheelchair models are less than 3'–11" long (1193.8 mm); 55% of all wheelchair models are less than 3'–10" long (1168.4 mm); 33% of all wheelchair models are less than 3'–9" long (1143 mm);

Width: 89% of all wheelchair models are less than 2'–4" wide (711.2 mm); 76% of all wheelchair models are less than 2'–3" wide (685.8 mm); 49% of all wheelchair models are less than 2'–2" wide (660.4 mm).

Because the space requirements for a wheelchair must also take into account dynamic as well as static data, tolerances are needed between the chair's drive rims, the wheelchairs user's hands, and any obstructions adjacent to the path of travel. Although 2'–6" will allow the passage of most wheelchairs, it must also be recognized that wheelchair users cannot travel in a precisely straight line because of such factors as different arm strengths or the need to use one's feet to propel the chair. As a result, most research studies and standards recommend a minimum width of 3'–0" for maneuvering space. Additional information on the characteristics of wheelchairs will be available upon the completion of the Canadian Standards Association (CSA)

code on performance, design, and operation of self-powered, folding, multi-purpose wheelchairs (CSA Z–323.1.1). The CSA's Subcommittee on Mobility Aids anticipates the publication of the Standard in the Spring of 1981.

Dr. Edward Steinfeld conducted a number of tests under the HUD contract to determine the wheelchair clearances needed for turning. The tests indicated that the following dimensions were needed:

180° turn: A space 5'0" wide by 6'–6" deep accommodated 91% of the subjects tested.

K-turn: The space required for a K-turn ranged from an area 3'–6" by 4'–0", to an area 5'–0" by 6'–0".

U-turn: The space required for a U-turn around a wall ranged from a 2'–6" by 2'–6" by 2'–6" space [for people who could use their feet for turning movements) to 3'–0" (at the start of the turning movement) by 4'–0" (head of wall) by 3'–6" (at the finish of the turning movement),

L-turn: A minimum corridor width of 3'–0" and a 3'–0" doorway width are needed to accommodate most users.

The "Accessibility Standards" for the State of Illinois, and other research studies illustrate comparable findings. Space requirements for those using walking aids such as crutches, canes, and walkers are similar to those of wheelchairs users.

(c) *Clear Access Space. See* paragraph 1190.40(b), *Moving Wheelchair Clearances* of the draft Regulatory Analysis.

(d) *Reach Limitations.* Dr. Steinfeld tested wheelchairs users, ambulant, and semiambulant people to determine maximum vertical (side) and forward reach. Results of those tests, as reported in the HUD research report, are as follows:

Maximum vertical or side reach: Wheelchair users: 3'–0" to 6'–0"; 89% of those tested could reach 4'–6"; 96% of those tested could reach 4'–0".

Semiambulant and ambulant (standing): < 5'–0" to > 7'–6". Maximum forward reach:

Wheelchair users: 1'–6" to > 3'–6"—88% of those tested could reach a maximum of 3'–3".

Test results for seated semiambulant and ambulant individuals were similar to those of wheelchair users. The lack of trunk balance, restricted head movements, and disabilities of the upper torso severely restrict the reaching capabilities of many persons. Toes hitting a wall prevent maximum forward reach from being achieved. *See also* § 1190.210 Telephones.

§ 1190.50 Walks, Floors, and Accessible Routes

(a) *General.—Scope.* Accessible routes are unobstructed, continuous paths and areas that provide clearly marked passageways between elements, spaces, and levels in and around a building or facility. Accessible routes provide adequate passageways between and within interior and exterior accessible elements and spaces, and may include walks and corridors, ramps and curb ramps, stairs, elevators, platform lifts, entrances, doors, means of egress, and access aisles. Escalators do not qualify as an acceptable means of access.

Minimum Number. At least one accessible route shall be provided as required by Subpart C.

Objective. To facilitate the independent and safe movement of pedestrians and wheelchair users around and through buildings and facilities.

Unresolved or Controversial Issues. None.

Basis for Proposal. § 1190.50 Walks, Floors, Accessible Routes, as presented in the NPRM, reflects research conducted by Dr. John Templer at Georgia Institute of Technology while under contract with the Department of Transportation; research conducted by Dr. Edward Steinfeld of Syracuse University while under contract with the Department of Housing and Urban Development; existing state and Federal codes and policies; ANSI A–117.1–1980; public comments in response to questions in the ATBCB Notice of Intent; and Board discussions. One minor difference between the ATBCB NPRM and the ANSI A–117.1–1980 standard concerns cross-slopes: The cross-slope in the guidelines is 1:48 as opposed to 1:50 in ANSI. The ATBCB used 1:48 in order to accommodate typical measurements found elsewhere in the construction industry.

(b) *Width. See* § 1190.40(a), (b), and (c).

(c) *Protruding Objects.* Protruding objects will be detected by a blind or visually impaired person using the cane technique only if they fall within the range detectable by the cane. By the use of the touch technique and the diagonal technique, cane users can identify the location of potentially hazardous objects that have their leading edge mounted no higher than 2'–3" from the ground. *See* HUD, "Accessible Buildings for People with Severe Visual Impairments" (HUD–PDR–404).

(d) *Passing Space. See* § 1190.40(a), (b), and (c).

(e) *Vertical Clearance.* Overhangs cannot be detected by the blind; therefore, a vertical clearance of at least 6'–8" is required. *See* HUD, "Accessible Buildings for People with Severe Visual Impairments."

(f) *Slope.* See § 1190.70 Ramps and Curb Ramps.

(g) *Level Changes.* A number of issues arose concerning the question of vertical access requirements for changes in levels or grades: (1) Must vertical access to various levels in a buidling or facility be provided by interior means only? There appears to be no reason for disallowing exterior vertical access other than the problems caused by severe climates (*e.g.,* snow, sleet, ice) and by the inconvenience of increased travel times for handicapped users. (*See* § 1190.60(b) of the Regulatory Analysis.) It offers the advantages of being less costly and of providing an alternative to interior vertical access.

(2) Should vertical access between stories be provided by elevator only or are other means permissible? Research is currently underway by the Department of Transportation to determine the safety and usability of ramps and lifts to provide vertical access for level changes of up to one story. Although ramp access is considerably more difficult and time consuming than elevator travel, ramps do appear to be a promising alternative for fire egress requirements. For additional information, *see* § 1190.70 Ramps and Curb Ramps; § 1190.80 Stairs; § 1190.100 Elevators; and § 1190.110 Platform Lifts of the Regulatory Analysis.

(3) If a program is located at grade level, must other levels be accessible? To meet the requirements for program accessibility specified under Section 504 of the Rehabilitation Act, the Federal Government and recipients of Federal financial assistance have located those programs required to be accessible at grade level. This policy decision, however, is not permissible under the Architectural Barriers Act.

(h) *Egress.* Public comments in response to questions in the Notice of Intent and Board discussions focused on two fundamental assumptions: 1. Buildings and facilities that are accessible to handicapped persons should also provide safety facilities that are accessible and usable during an emergency.

2. The level of safety provided handicapped persons should be equivalent to that provided able-bodied persons.

To gain a better understanding of the handicapped person's needs during emergencies and the problems

experienced, the Board relied on the National Bureau of Standards (NBS) Report, NBSIR 80–1965, "Fire and Life Safety for the Handicapped," conference and preparatory workshops reports (February 1980). The NBS Panel on Egress for this study found that research results on fire safety for the handicapped were not readily available; however, the Panel emphasized that this lack of data should not impede the implementation of safety features known to be effective.

The NBS report concludes: 1. People in fire emergencies tend to use routes with which they are familiar.

2. Because the majority of time spent between the sounding of the alarm and escape is spent on evaluting the situation and deciding what to do, it is extremely important to provide effective, unambiguous fire alarms and a readily accessible means of egress.

(3) People with handicaps can evacuate, in some instances, up and down stairs.

Specific barriers identified included: (1) Fire doors and hardware: There is a need for fire doors and hardware with opening and closing characteristics that will enable people in a weakened condition or those with limited coordination to use doors easily and at the same time ensure that closing characteristics and door construction do not compromise the safety of the protected area.

(2) Openings: A minimum of 2'–8" should be provided at door openings.

(3) Dead end corridors: Dead end corridors should be identified and wide enough to allow a wheelchair user turning space.

(4) Floor surfaces: Tripping hazard and surface traction should be minimized.

It is reported that the Life Safety Code, NFPA No. 101–1976, will be revised to cover specific provisions for accessible means of egress for the handicapped including requirements for two areas of refuge located on floors other than those at grade level and that are contiguous with an elevator or stairway. Approval of the Code is expected this year.

A review of the state-of-the art materials and alternatives concerning emergency egress to the handicapped indicates that further research needs to be completed prior to the development of a definitive standard. Specific items identified for additional research include: (1) Criterion for fire safe elevators.

(2) Travel times necessary for handicapped persons to evacuate buildings or facilities or to get to areas of refuge.

(3) Identifying alternative methods of protection during fire emergencies.

(4) Criteria for retrofitting existing buildings.

Until such time as the Life Safety Code, NFPA 101–1976, is revised to include specific egress requirements that are accessible to the handicapped or until such time as additional research is completed, the Board proposes only that: (1) A means of egress be readily accessible from all accessible rooms and spaces;

(2) Egress requirements for the handicapped shall comply with applicable fire code provisions; and

(3) Fire and smoke partitions and/or areas of refuge complying with applicable fire code and safety provisions are permitted in multi-story buildings where at-grade egress for each floor is impossible.

(i) *Ground and Floor Surfaces.* The walking surface is critical to the safe passage of wheelchair users, persons with walking difficulties, and people with visual impairments. Tripping hazards are presented by uneven surfaces, small thresholds, and joints. Slippery surfaces and carpets present similarly hazardous situations. For example, the backing of the carpet, the carpet pad, or the pile can prevent a wheelchair user from traversing a carpeted surface. A textured loop carpet presents another problem; the wheelchair tends to "track" the cut of the carpet making a direct route difficult or impossible. Moreover, the uneven or rough surfaces can cause serious accidents by jolting the wheelchair and causing the person in the chair to be thrown to the ground. Jolting can also result in severe head pain and can aggravate pressure sores.

The majority of the provisions in this section incur no cost penalty and reflect state accessibility code requirements as well as construction industry capabilities. Grating specifications may increase costs slightly due to the closer bar spacing; however, this increase should not be significant in terms of overall cost.

§§ 1190.60 Parking and Passenger Loading Zones

(a) *General.—Scope.* Parking facilities subject to the minimum guidelines include both interior and exterior parking lots, garages, spaces, and passenger loading zones for both the general public and employees. Street parking is subject to the guidelines only if it is designated as reserved for official use by the Federal Government or if it is the only parking provided. Parking facilities must be accessible for the wheelchair van as well as passenger automobiles.

Minimum Requirements. All parking provided for employees and visitors shall comply with §§ 1190.60.

Objective. To provide parking facilities that are usable by, accessible to, and safe for handicapped persons.

Unresolved or Controversial Issues. Should parking facilities complying with Section 6 be required at all buildings and facilities constructed, altered, or leased by the Federal Government?

Basis for Proposal. § 1190.60 *Parking and Passenger Loading Zones,* as presented in the NPRM, reflects the existing requirements of a number of state and Federal agencies. It is similar to the ANSI A117.1–1980 requirements except for cross slope and vertical clearance. The maximum cross slope for parking faciities in the NPRM is 1:48, a measurement which will accommodate current practices of the construction industry. ANSI provides for a cross slope of 1:50. The vertical clearance for specially adapted vans used by handicapped persons was also included in the ATBCB specifications. Based on the height specifications for high top vans currently in use, the figure 9'–7" was chosen.

(b) *Location.* Because many handicapped persons have limited stamina, move very slowly, or find it too demanding to traverse even a few hundred feet, it is necessary to locate parking spaces as close to an accessible entrance of a building or facility as possible. Controlled experiments with people having walking limitations determined that slow moving people can be expected to travel at a rate of 1 foot/second and that 100 feet is the maximum distance of travel between rest stops for many people with limited stamina. A 300 foot distance, for example, could require a travel time of 5 minutes excluding any time required for resting. For this reason, some standards set a maximum allowable travel distance to an accessible entrance (*e.g.,* U.S. Department of the Army: 100 feet; USPS: 200 feet).

(c) *Accessible Parking Spaces.* Individuals using walking aids and wheelchairs require a greater than normal access aisle in order to fully open the car door and to manipulate ancillary devices such as wheelchairs, crutches and walkers. Excessively sloped spaces and aisles can make it very difficult to open and close a door or to transfer to a wheelchair. However, if the surface is perfectly level, water may not drain and may result in an additional hazard. Furthermore, it is important to provide a clear and accessible aisle in front of the vehicle to

allow a wheelchair user to pass safely; it is difficult for a driver to see wheelchair users travelling behind parked vehicles.

(d) *Passenger Loading Zones.* This paragraph is based on other codes and agency requirements. It is similar to ANSI A117.1–1980.

(e) *Vertical Clearance.* Specially adapted vans for handicapped persons are often too high for parking garages and entrances to facilities. For example, the approximate height of an unmodified van is 6'–9"; if it is modified to accommodate a person seated in a wheelchair, the height is approximately 8'–2".

(f) *Signage. See* § 1190.200 Signage of the Regulatory Analysis.

§ 1190.70 Ramps and Curb Ramps

(a) *General.—Scope.* Ramps and curb ramps include all walks and corridors with slopes greater than 1:20.

Minimum Requirements. Provide a ramp or curb ramp whenever an accessible route crosses a level change greater than ½ inch (13mm) and at all legally established crosswalks.

Objective. To provide safe, continuous vertical access at changes in level or grade on an accessible route for handicapped persons.

Unresolved or Controversial Issues. None.

Basis for Proposal. § 1190.70 Ramps and Curb Ramps, as presented in the NPRM, reflects much of the research conducted by Dr. John Templer of the Georgia Institute of Technology while under contract with the Department of Transportation and that of Dr. Edward Steinfeld of Syracuse University while under contract with the Department of Housing and Urban Development. Many of the requirements specified in § 1190.70 are similar to existing state codes and Federal policies and those forwarded by ANSI. Board discussions and public comments were also considered in the recommendation. The proposed NPRM does not differ significantly from ANSI A–117.1–1980.

(b) *Slopes and Rise.* In order for a ramp or curb ramp to be usable by those confined to wheelchairs and by semi-ambulant and ambulant people, the slope and length of a ramp must be controlled. Research results confirm that wheelchair users, including quadriplegics, are usually able to negotiate a ramp with a slope of 1:20 and a length of less than 40 feet. The HUD research study demonstrated, however, that a number of the wheelchair users tested were unable to manage either the slope or the length of ramps steeper than 1:20 and longer than 40 feet. In fact, almost half of the wheelchair users tested were unable to negotiate a 40 foot ramp sloped at 1:20. Test results also indicated that people with poor stamina or walking difficulties may also have problems with longer or steeper ramps. In addition to the stamina difficulties involved with people using steeper ramps, wheelchair users tend to tip over backwards while ascending steep slopes (especially those greater than 1:10) or to lose control during descent.

The angle between the ramp and the gutter or adjoining surface can also create a considerable problem for a wheelchair user because it can cause the chair to come to an abrupt halt throwing the person out of the wheelchair; therefore, these transitions must be gradual.

(c) *Width. See* § 1190.40 Human Data of the Regulatory Analysis.

(d) *Cross Slope.* The cross slope of the ramp must allow all four wheels of the wheelchair to contact the ramp surface; otherwise a wheelchair may go out of control. Flared sides of curb ramps can also make it difficult for individuals with walking difficulties to negotiate a ramp.

(e) *Curb Ramps.* Some individuals with limited mobility and most wheelchair users cannot negotiate the 6 inch curb located at pedestrian crossings; therefore a curb ramp is necessary. The preferred and recommended locations for curb ramps are the center of the crosswalk of each street corner and at other legal crosswalks. If they are located elsewhere, they may cause conflict and could direct ramp users into moving traffic. A 4'–0" width is necessary to accommodate the path of the wheelchair user in a power-driven chair.

So that blind persons can sense the demarcation between sidewalk and street surfaces, a distinct change in texture between the surface of the sidewalk and the curb ramp is necessary. Continuous curb ramps around corners disorient blind persons and should be avoided.

(f) *Ramps.* Handrails are necessary on all ramps (with the exception of curb ramps) because they are used not only for support but also as a means to propel wheelchairs. However, concern was expressed that the edges of free-standing handrails should be turned down so as not to present a hazard.

(g) *Exterior Conditions. See* § 1190.50 Accessible Route.

§ 1190.80 Stairs

(a) *General.—Scope.* This section includes stairs that connect levels and grades that are not connected by an elevator.

Minimum Number. All stairs that connect levels and grades not connected by an elevator shall comply with this section.

Objective. To design, construct, and alter stairs so that they provide a safe and convenient means of vertical access for people with limited stamina, for individuals with limited leg movements such as those with braces or crutches, and for people with visual impairments and for the blind.

Unresolved or Controversial Issues. Tactile Warnings at the Top of Stairs. One of the major findings of the HUD study "Accessible Buildings for People with Severe Visual Impairments" was that stairs located in the path of travel, especially those leading in a downward direction, present a hazard to those who are blind or have visual impairments. The study strongly recommends that a tactile warning signal be placed at the top of the stairs if they are located directly in the path of travel. Representatives from the State of Illinois, however, reported problems with some warning strips coming loose and becoming tripping hazards. The Board concluded that additional information was needed in this area.

Basis for Proposal. NBS Building Science Series 120, *Guidelines for Stair Safety,* May 1979, summarizes information and research on stair use and safety. § 1190.80 Stairs reflects the conclusions in this report and contains requirements similar to those contained in the more recently developed state and international codes. § 1190.80 Stairs differs from ANSI A–117.1–1980 in that the NPRM prohibits the use of open risers.

(b) *Risers.* It was recognized that many semi-ambulatory people find ramps difficult or impossible to use and, therefore, prefer that stairs be provided in lieu of ramps. It was also recognized that fire stairs do not present many of the problems inherent in stair design because the path of travel on fire stairs is generally in a downward direction. For example, nosings will not cause tripping in the downward direction.

In 1974, Dr. Templer used a laboratory stair treadmill to record and analyze gait rhythms generated by a range of stair conditions. He found that people made the fewest missteps when the risers were between 6.3 inches to 8.9 inches apart and when treads were 7.7 inches to 14.2 inches. Stairs with longer treads were not studied. The NBS study "Guidelines for Stair Safety" further reported that the desirable riser height for interior steps is 7 inches; however, 6 inches was preferable if the stairs were to be used mainly by older or handicapped persons. It was further

recommended that the height of exterior steps should be limited to 5 or 6 inches. E. Grandjean, in his 1973 study noted that less energy is expended by people using a stair slope of between 25° and 30°.

The NBS study points out that open risers can divert a user's attention to activity, interesting scenes, or objects behind the stairs. In addition, light patterns resulting from the open risers may also distract a user. The study concludes that "although there appears to be only anecdotal data which relate accident rates to open risers, extrapolation from the data on the rate of visual distraction in stair use suggest that open risers could contribute to stair accidents."

(c) *Nosings.* NBS reports that a common type of accident on stairs involves tripping on the top of the riser during ascent and then falling forward. According to the study, the typical reflex response to such a fall is to thrust the hand forward to brace oneself by grabbing the nearest tread or nosing. Because this maneuver is not always successful, it is extremely important that the edges of each nosing distribute the impact as widely as possible to minimize injury. Extensive observations by Gowings (1961) and Fruin (1971) of pedestrian behavior lead to two conclusions: (1) the nosing should be an integral part of the tread so that it does not separate after prolonged use; and (2) the curvature of the edge should not be too great so that the user's foot will more likely bear on a level surface rather than a sloping surface.

(d) *Handrails.* There was some question as to whether handrails are necessary on both sides of a stair if stairs are wider than 3'–8" because these widths prohibit simultaneous use of both railings. It was noted that some persons may be able to use only one hand or the other, thus railings should be provided on both sides. *See also* § 1190.90 Handrails.

(e) *Stair and Landing Surfaces.* Ambulent and semi-ambulant people who have difficulty maintaining balance, lack coordination, or have restricted gaits are particularly susceptible to slipping and tripping hazards. Slip resistant, stable, and regular surfaces are especially important on stairs. *See also* § 1190.50(i) Ground and Floor Surfaces.

§ *1190.90 Handrails*

(a) *General.—Scope.* This section includes handrails provided at stairs and ramps.

Minimum Number. Handrails shall be provided on each side of each interior and exterior ramp and stairway.

Objective. To facilitate independent and safe movement of handicapped persons on stairs and ramps by providing additional stability for the user, support for elderly and physically handicapped persons, a pivot point at corners and doglegs, and a grab bar for support in case of an accident.

Unresolved or Controversial Issues. Should a perimeter formula be used to determine the maximum handrail width or should a width measurement be used?

Basis for Proposal. The NBS Building Science Series 120, Guidelines for Stair Safety, May 1979, provided much of the background information and research used by the ATBCB in developing § 1190.90 *Handrails.* The NPRM differs from ANSI A117.1–1980 on the maximum width of handrails permitted. (For an explanation of this difference, *see* § 1190.90(b)(1) of this section.)

(b) *Size and Spacing. See unresolved or controversial issues* above.

(1) *Cross Section.* The NBS study, *Guidelines for Stair Safety,* reviews a number of research studies that recommend a handrail diameter of 1¾ inches to 2 inches as the most appropriate for easy gripping by an adult population. ANSI, however, chose to use a 1¼ inch to 1½ inch diameter for the gripping surface of the handrail. It was felt by the ANSI Committee that a 2 inch wide handrail did not allow as good a grip as the 1½ inch width for many people. As a result of the specification contained in the ANSI A117.1–1980 standard, a number of letters were submitted by the EO6.12 Subcommittee of the American society of Testing Materials (ASTM) and Dr. George Stein of the Virginia Polytechnic Institute and State University, which indicated that the ANSI sizes were in conflict with industry standards. Based on the NBS research and the desire to coordinate with current industry standards on handrails, the ATBCB decided to propose a handrail standard based on a maximum perimeter of 6 inches which would allow a 2 inch wide handrail.

(2) *Mounting of Handrails.* NBS reports that J. H. Sheldon suggested that the handrail should be sufficiently away from the wall to permit the "grasp reflex" in case of emergency. Teledyne-Brown Engineering in "A Design Guide for Home Safety" recommends that this distance be a minimum of 2½ inches.

(3) *Continuous Handrails.* NBS found that interruptions in the continuity of handrails could be linked to stairway accidents. Although it was also noted that users may exercise greater caution when a handrail is absent, the likelihood of a severe accident increases.

(c) *Handrail Projections.* It is recommended by the NBS study to extend or replace the end portion of the railing so that it terminates in a position on or near the flight but outside of the user's path of travel. The free swinging hand, the wrist, and the pelvic area are the most vulnerable areas to hit on handrail projections for adults whereas the shoulders and face are the most vulnerable for children. ATBCB therefore proposes to require that the ends of freestanding handrails be either rounded or returned smoothly to the floor or the post.

§ *1190.100 Elevators*

(a) *General.—Scope.* This section includes passenger elevators serving multi-story buildings and facilities.

Minimum Number. At least one passenger elevator complying with § 1190.100 *Elevators* shall be provided in all new multi-level buildings and facilities and in all additions to existing buildings and facilities having more than one story unless another means of vertical access complying with § 1190.31 New Construction is provided. If an existing building has more than one story, at least one passenger elevator meeting the requirements of the guidelines is required under conditions set forth in § 1190.33 Alterations.

Objective. To insure that people with walking limitations, lack of stamina, difficulties with balance and coordination, reaching difficulties, or a loss of hearing and sight, or who use wheelchairs, can use elevators conveniently and safely and have access to all levels of a multi-story building or facility.

Unresolved or Controversial Issues. See § 1190.31 New Construction, Additional Information Requested and § 11909.33 Alterations, Additional Information Requested.

Basis for Proposal. § 1190.100 Elevators, as presented in the NPRM, reflects research conducted by Dr. Edward Steinfeld of Syracuse University while under contract with the Department of Housing and Urban Development; the National Elevator Industry, Inc. (NEII), "Suggested Minimum Passenger Elevator Requirements for the Handicapped," July (R1977); ANSI A117.1–1978, and other existing standards and codes. The ANSI A117.1–1980 reflects, to a large degree, the NEII publication, and, in addition, duplicates some of the requirements in ANSI A17.1–1978, "Safety Code for Elevators."

(b) *Operation and Leveling.* The HUD study identifies problems associated with leveling (*i.e.,* and elevator floor which is not flush with the building

floor), as a severe problem for people having visual impairments or blind, having poor balance and lacking coordination, having difficulty with moving their heads, or for those using walking aids and wheelchairs. The NPRM is similar to the requirements of NEII and ANSI A117.1–1980.

(c) *Elevator Door Operation.* Dr. Steinfeld measured the rates of travel for different people with disabilities and found that nearly two thirds of those who tested travel at 1.5 feet per second. Over one third of those who used wheelchairs or walking aids traveled at rates of 1 foot per second or less. In order for a handicapped person to travel from the lobby call button to the car answering the hall call, it is necessary for the doors to remain open for several seconds. NEII recommends the following minimum acceptable time from notification that a car is answering a call until the doors of that car start to close:

0 to 5' : 4 seconds.
5 to 10' : 7 seconds.
10 to 15' : 10 seconds.
15 to 20' : 13 seconds.

In addition, the HUD research identified elevators lacking automatic features for reopening the elevator doors without contacting the individual as a severe problem for many handicapped individuals, especially for those who are blind. The NEII minimum requirements suggest that wheelchair and walker manufacturers be required to provide some solid material at 5" and at 2'–5" to ensure door reversal before contact of a door closing in the path of a wheelchair or walker.

(d) *Elevators Cars.* As a result of the research tests conducted under HUD contract, it was determined that wheelchair users are able to use an elevator car with dimensions of 4'–3" by 5'–8" with a clear door opening of 2'–8". In order to provide a clear space within an accessible elevator to allow wheelchair users to make a 180 degree turn, a space 4'–6" wide by 6'–0" deep accommodates most subjects. An ambulance stretcher is 2'–0" by 6'–0". These dimensions are similar to those recommended by NEII.

It was also found as a result of the research that a number of those tested could not reach a control panel higher than 4'–4". The report recommends that the highest control button be placed at 4'–0"; however, it is noted that it may not be possible to locate the highest button at this point in cases where such placement of long panels would put the lowest button below the comfortable reach of ambulant users. In addition, it is recommended in the study that control panels be mounted in the front wall adjacent to the entry. The HUD report suggests that people who have severe reaching limitations may have to use aids such as pointers, extenders, and the like to activitate call and floor buttons if those controls are not within their reach.

Dr. Steinfeld found in his "problem identification matrix" that those persons with severe visual impairments or who are blind found it extremely difficult or impossible to use elevators that did not have controls and features similar to other elevators or that did not identify the direction of the elevator by a signal.

(e) *Door Jamb Markings.* This requirement is similar to that contained in the NEII minimum requirements except that the ATBCB proposes that the characters designating the floor be 2" high as (§ 1190.200(c)(2)) rather than the 2½" required by the NEII.

(f) *Lobby Call Buttons.* In addition to the specifications contained in the NEII requirements, recessed buttons are disallowed in the ATBCB proposal and objects mounted beneath the call button may not protrude more than 4" (100 mm). The requirements were added because objects that extended more than 4" prevented access to the buttons for wheelchair users. Recessed buttons were disallowed because persons with upper limb amputations cannot use them.

(g) *Hall Lanterns.* The requirements of this paragraph are similar to those of the NEII.

(h) *Car Position Indicator and Signal.* The requirements of this paragraph are similar to those of the NEII.

(i) *Illumination Levels.* The requirements of this paragraph are similar to those of NEII and ANSI A17.1.

(j) *Intercommunication System:* The requirements of this paragraph are similar to NEII except that the ATBCB proposes to identify the intercommunication system with raised lettering and symbols for usage by the visually impaired and blind; to provide a momentary contact button to enable hearing impaired individuals to summon assistance; and to require door hardware that is accessible for people with strength and coordination limitation.

§ *1190.110 Platform Lifts*

(a) *General.*

Scope. Platform lifts, including but not limited to standing lifts, attendant/wheelchair lifts, and wheelchair lifts, which meet the requirements of the minimum guidelines and are an acceptable means of vertical access.

Minimum Number. Provide as required by Subpart C.

Objective. To provide people who have walking limitations, lack stamina, or who use wheelchairs a method of accessibility at changes in level or grade.

Unresolved or Controversial Issues. To date, there are no accepted standards for platform lifts, wheelchair lifts or other mechanical lifting devices. However, the Canadian Standards Association and ANSI A 17 Committee plan to issue separate consensus standards in the near future. The CSA Steering Committee of Lifting, Hoisting, and Related Devices (CSA B–44) plans to publish a safety code for elevating devices for the handicapped in the near future. The scope for the code includes the minimum safety requirements that relate to design, construction, operation, inspection and testing of devices which can be used by the handicapped for vertical access. Platform lifts, stair-chair lifts, and stair platform lifts will be covered by the code.

Basis for Proposal. Significant cost reductions can be achieved, especially during alteration work if a platform lift is allowed. The ATBCB therefore is proposing to permit its use but stresses the need for adequate safety precautions.

(b) *Requirements.* Lifts provide an alternative to ramps and elevators and offer the advantages of reduced space requirements and significant cost reductions. Because these devices are relatively new and not widely used, care should be taken in selecting and installing lifts to insure that the device is safe for users, operators, and those in the vicinity during the time the lift is in use.

§ *1190.120 Entrances*

(a) *General.*

Scope. This section includes all entrances to a building or facility.

Minimum Number. Each entrance to a new building or facility shall comply with § 1190.120 Entrances; each entrance in an addition to an existing building shall comply with § 1190.120 Entrances; each entrance that is altered in an existing building shall comply with § 1190.120 Entrances; if no entrances are provided in the addition, then at least one entrance in the existing building or facility shall comply with § 1190.120 Entrances; if additional entrances are required to be accessible by § 1190.33 alterations, they shall comply with § 1190.120 Entrances.

Objective. To provide entrances to a building or facility that are convenient and usable by handicapped persons.

Unresolved or Controversial Issues. *See* § 1190.31 New Construction.

Basis For Proposal. Dr. Steinfeld identified a number of severe problems concerning entrances: Narrow door openings, high thresholds, stairs, lack of maneuvering space, severe cross slope, and revolving doors or turnstiles. Public comments and Board discussions verified the necessity to provide accessible entrances whenever possible. Although most State codes and Federal requirements require only one accessible entrance, the Board decided for reasons of safety and convenience, that all entrances should comply with this section.

(b) *Service Entrances.* The only accessible entrance cannot be a service entrance because it does not provide dignified and convenient access.

(c) *Access to Elevators. See* § 1190.50 Walks, Floors, and Accessible Routes.

§ *1190.130 Doors*

(a) *General.*

Scope. This section includes doors, doorways, gates, thresholds, and hardware.

Minimum Number. Each door shall comply with § 1190.130.

Objective. To provide doors at entrances and exits and within the building or facility that are accessible and usable by handicapped individuals.

Unresolved or Controversial Issues

(1) Doors to hospital patient bedrooms. Should front approach entry doors to acute care hospital patient bedrooms be exempt from the latch side clearance width of 2′–0″ or 1′–6″ if the door is 3′–8″ wide?

(2) Fire Doors. The opening force requirements are particularly important for fire doors. The higher opening forces for fire doors provide the safety requirements necessary to insure adequate pressure to engage latches when necessary (*i.e.,* to prevent fire doors from swinging open under the wind-load factors found in a fire situation). The higher opening forces that provide safety on the one hand also serve as a dangerous barrier for the handicapped. Research conducted by Dr. Steinfeld indicates that a number of handicapped people cannot exert 5 lbf (pound force) to open a door and a majority cannot exert 8 lbf either with one hand or the other to open a door.

Questions have been raised by door and hardware manufacturers as to the benefits and costs of a requirement that would allow only the 5 lbf or 8.5 lbf opening force. Closer manufacturers claim that they are unable to control all conditions affecting the opening force of a door (*e.g.,* orientation, wind speed, inside air pressure) and that the lower opening force requirements would not be effective in closing doors under difficult conditions.

The National Bureau of Standards plans to study this issue and the additional research should supply data on the minimum forces necessary to provide safety performance in the case of a fire and also permit the door to be opened by handicapped persons. Until research on this topic is completed, the Board proposes deleting the door pressure requirements for fire doors from the minimum guidelines. *See* § 1190.31 New Construction, Additional Information.

3. *See also* § 1190.31 New Construction, *Additional Information Requested,* question 4.

Basis for Proposal

The NPRM is based on Dr. Steinfeld's research, published in the HUD series: "Accessible Buildings for People with Walking and Reaching Limitation," "Accessibility for People with Severe Visual Impairments," and "Access to the Built Environment: A Review of Literature." A number of State access codes and building codes were also reviewed by the Board along with research completed by Dr. John Templer.

(b) *Clear Width. See* § 1190.40 Human Data and § 1190.50 Walks, Floors, and Accessible Routes.

(c) *Maneuvering Space.* Dr. Steinfeld reported in the HUD study that the clearances in front and at the latch sides of doors should be based on the approach pattern and direction of the door swing. He recommends in cases where doors swing out into the direction of travel, toward the user, wider corridors are needed and larger spaces at the latch side should be provided. Tests showed that a 2′–0″ clearance at the latch side of the door accommodated about 83 percent of those sampled. A 5′–0″ clearance in front of the door provided accessibility for 92 percent of the subjects. If the space at the latch side of the door is reduced to 1′–6″, only 60 percent of those tested could use the doors. The ANSI A117.1–1980 also uses a 2′–0″ clearance at the latch side of the door; however, several State codes use a 1′–6″ dimension. *See,* for example, Illinois, New Jersey, Utah, Massachusetts, and Washington. S. O. Brattgard at the University of Goteborg, Sweden, and F. Walter at the Disabled Living Foundation in London, England, have also studied the maneuvering requirements for wheelchair users through doorways. Dr. Steinfeld compared the research recommendations of these studies with his own and found that more than half of the HUD sample population could not use the latch side clearances recommended by Walter. *See* also § 1190.31 New Construction, *Additional Information Requested.*

In cases where doors swing away from the user, narrower corridors can be used. The HUD research reported that if a door is approached from the hinge side or latch side, a corridor width of 3′–6″ is required. Space at the latch side is not required. These spaces are based on the requirements for an "L"-turn. *See* § 1190.40 Human Data. If a direct forward approach is used, 5′–0″ is required in front of the door with a 1′–0″ clearance at the latch side.

(d) *Doors in a Series.* Vestibules between two doors are frequently too small for handicapped person to use, particularly those in wheelchairs. Dr. Templer recommends in the Department of Transportation study, "Development of Priority Accessible Networks," that 4′–0″ be used to accommodate the space requirements for a wheelchair. ANSI A117.1–1980 provides similar requirements.

(e) *Thresholds.* The HUD researched recommends that thresholds not be used at interior doorways. At exterior locations, the report states they should not exceed ½ inch in height and that the edges should be beveled. Dr. Templer reports similar findings in his research for the DoT. In the case of exterior sliding doors, a ¾ inch maximum threshold is allowed in order to accommodate the door hardware. ANSI A117.1–1980 provides similar requirements.

(f) *Hardware.* Dr. Templer reports that some elderly and handicapped people find it difficult or impossible to use round doorknobs. The knobs are difficult to grasp and twist especially for those who are upper-limb amputees, quadriplegics or arthritics. ANSI A117.1–1980 provides similar requirements.

(g) *Doors to Hazardous Areas.* The HUD report, "Accessible Buildings for People with Severe Visual Impairments," strongly recommends that standardized tactile warning signals be placed on door openers or doors to hazardous areas. Such hardware should never be placed on emergency exits.

(h) *Closure and Opening Forces. See* § 1190.130(a) *Unresolved or Controversial Issues,* 2, Fire Doors, of this section, and § 1190.31 New Construction, *Additional Information Requested.*

Maximum pushing or pulling opening forces for doors provided in this paragraph are based on tests conducted by Dr. Steinfeld to determine the abilities of people with limitations of strength. Research results demonstrated that fewer than 30% of the wheelchair users tested could exert a maximum

force of up to 10 lbf in all directions. As a result, the report recommends that operating forces for opening doors and windows be as low as technology allows, preferably below 5 lbf.

(i) *Automatic Doors.* The "open" times provided in this section are based on the rates of travel for handicapped persons provided in the HUD research. *See also* § 1190.100(c) *Elevator Door Operation* of the draft analysis.

§ *1190.140 Windows*

(a) *General.*

Scope. Windows intended for occupant operation are covered by this section.

Minimum Number. At least one window intended for occupant operation in each accessible space shall comply with this section.

Objective. To provide windows that are usable by handicapped individuals.

Unresolved or Controversial Issues. None.

Basis for Proposal. The pressure requirements are based on the research completed by Dr. Edward Steinfeld, while under contract to HUD. The technical requirements are similar to the ANSI A117.1–1980 edition. State accessibility codes have not yet addressed the subject of accessible windows.

(b) *Hardware. See* § 1190.130(f) *Hardware* and (h) *Closure and Operating Forces* of the Regulatory Analysis.

§ *1190.150 Toilet and Bathing Facilities*

(a) *General.*

Scope. Toilet and bathing facilities include, but are not limited to, water closets, urinals, lavatories and sinks, bathtubs and showers, mirrors, grab bars, stalls, and other plumbing fixtures and accessories.

Mininum number. Each toilet and bathing facility provided in newly constructed buildings and facilities shall comply with § 1190.150 if an addition is made to an existing building and it does not provide toilet and bathing facilities in the addition, but they are provided in the existing building, then at least one of those facilities serving the addition shall comply with § 1190.150; and if toilet and bathing facilities are altered in an existing building, then each altered facility shall comply with § 1190.150; or if 50% or more of the value or if 50% or more of the gross floor space of a building or facility is altered then each toilet and bathing facility in the existing building or facility shall comply with § 1190.150.

Exception: Unisex facilities may be provided under the conditions set forth in § 1190.150(a) of the minimum guidelines.

Objective. To provide personal hygiene facilities that have the same privacy and conditions available for the handicapped user as for the able-bodied user and that are located so that the facilities are readily accessible, convenient and usable.

Unresolved or Controversial Issues. None.

Basis for Proposal. § 1190.150 Toilet and Bathing Facilities was based on research by Dr. Steinfeld, state codes, OSHA requirements, and research by Alexander Kira published in his book, *The Bathroom.*

(b) *Toilet Fixtures and Accessories*

(1) *General. See* § 1190.40 Human Data and § 1190.50 Walks, Floors and Accessible Space.

(2) *Water Closets.* People who have difficulty bending or kneeling or who rely on walking aids identify low water closets as a severe problem. On the other hand, water closets that are too high can prevent a wheelchair user from making a transfer. The majority of wheelchair users (75 percent) and walking-aid users (72 percent) participating in the HUD research found that toilet heights (measured to the top of the seat) were most comfortable at 1′–5″ to 1′–7″. These heights reflect the requirements of ANSI A117.1–1980 and most state codes.

Flushing devices are often mounted too low to operate for people who have difficulty bending, or the devices require too much effort to operate. Floor operated flushing devices are extremely difficult for wheelchair users to use. The HUD study recommends that flush controls be located on the wide side of the stall. ANSI A117.1–1980 has a similar requirement.

Board discussions disclosed that handicapped people who have problems with balance and dexterity have a great deal of difficulty with toilet seats that are sprung to return to the upright position and with toilet paper dispensers that do not permit continuous paper flow. The HUD research report recommends that toilet paper dispensers be mounted on the walk closest to the water closet no more than 3′–0″ from the back wall, and between 2′–6″ and 3′–0″ high.

(3) *Toilet Stalls.* Toilet stall dimensions listed in the various codes vary from widths of 3′–0″ to 5′–6″ and include designs for front transfer, side transfer, and diagonal front transfer.

Front Transfer. Dimensions for a front transfer stall are based on ANSI A117.1–1961 (R1971) which required the 3′–0″ stall. The Michigan and BOCA codes require a 3′–6″ for the front transfer. Available information indicates that there is no advantage to the 6″ of added space, and it may, in fact, be detrimental. Reach restrictions may make the 3′–0″ more desirable and safer. In addition, the 3′–6″ represents additional costs. Approximately 40 percent to 50 percent of those who can transfer unassisted, can use a front-transfer stall. Because of its limited use, this width should be restricted to alteration projects. ANSI A117.1–1980 allows the 3′–0″ stall as an alternative.

Side Transfer. The 5′–0″ stall is the standard design for a "side transfer" stall. This stall width can be used by anyone who is able to transfer. ANSI A117.1–1980 uses this dimension, Washington State uses a 4′–6″ width for the side-transfer, and the U.S. Department of the Army uses 5′–6″.

Diagonal Front Transfer. The 4′–0″ stall was developed during the research that was completed under HUD contract. At the present time, it is the Board's understanding that the 4′–0″ width stall is not specified in any code; it is, however, the recommended minimum width provided by the HUD research. All wheelchair users able to complete toilet transfers that participated in the HUD study were able to use the 4′–0″ stall.

(4) *Urinals.* The paragraph, as drafted, reflects the majority of state-developed codes. ANSI A117.1 has similar provisions. The mounting height reflects the requirements of § 1190.40 Human Data in order for it to be convenient for a wheelchair user. The exception clarifying the use of urinal shields was provided in the A&TBCB proposal to allow urinals to be placed on standard mounting centerlines.

(5) *Lavatories and Sinks.* Because toilet room space is often confined, it is difficult to maneuver a wheelchair if lavatories and sinks are mounted so that they protrude into the path of travel. Mounting heights reflect requirements for knee space clearances for wheelchair users. Because wheelchair dimensions vary, it is difficult to specify a lower limit that will accommodate the chair height of all persons. As a result of a survey taken of those wheelchair users participating in the HUD research, it was found that 80 percent of the subjects tested preferred lavatory heights of 2′–8″. *See* also Regulatory Analysis § 11909.40 Human Data; § 1190.50 Walks, Floors, and Accessible Route; and § 1190.170 Controls and Operating Mechanisms. It is also necessary to place drains, traps, and water supply lines as far back and as high as possible so that they do not present an obstruction. Because many wheelchair users have no sensation in

their legs, they can receive serious burns from hot water supply lines without being aware of it. It therefore is necessary to insulate the pipes.

(6) *Mirrors.* This section reflects the requirements of § 1190.40 Human Data and most state accessibility codes. It is also similar to ANSI A117.1–1980.

(7) *Controls, Dispensers, Receptacles, or Other Equipment. See* § 1190.170 Controls and Operating Mechanisms and § 1190.40 Human Data.

(c) *Bathing Facilities.*

(1) *Bathtubs and Showers.* (i) *Bathtubs.* According to Alexander Kira, the author of the *Bathroom,* the tub bath is one of the most difficult and hazardous activities for the elderly and the handicapped. He recommends that bathtubs not be fitted with the conventional shower door assemblies because it makes the transfer from the wheelchair to the tub extremely difficult. He also examines the access problems and finds that the most basic issue is how to minimize movements. He finds that it is desirable to arrange the tub so that only one direct horizontal transfer is necessary. The HUD research recommends the use of horizontal grab bars on the three tub walls, an unobstructed floor space of 2'–6" for parallel access and 4'–0" for perpendicular access. Controls are recommended to be placed at the foot of the tub.

(ii) *Showers.* Alexander Kira believes that the shower provides a simpler, easier, and safer method than the tub for body cleaning. He recommends a shower stall 3'–0" by 5'–0" that has one of the long sides completely open and provides a seat 1'–6" high by 1'–3" deep. To provide easy and safe access, he recommends that the entrance curb be eliminated and drainage accommodated by a recessed entrance drain or by recessing the entire floor of the enclosure by providing a slanted floor flush with the room floor. Dr. Steinfeld found that a 2'–10" wide entry space was sufficient for all users, that a curb in the shower was a definite obstacle, and that grab bars were needed. If an "L" turn is required, the clear space required is 5'–0" wide by 3'–0" deep.

(d) *Grab Bars.* The requirements of this section are based on OSHA handrail standards, state codes, and uniformity. Although a 250 lb. figure is used in the guideline, most manufacturers guarantee their products to support 1000 lbs. Research by Dr. Steinfeld and Alexander Kira demonstrated that grab bars are necessary for pulling oneself into position and for sitting and standing up while using toilet and bathing facilities.

§ 1190.160 Drinking Fountains and Water Coolers

(a) *General.—Scope.* This section includes drinking fountains and water coolers.

Minimum Number. All drinking fountains and water coolers provided shall comply with this section.

Objective. To provide accessible, usuable water fountains for handicapped people so that they are able to obtain their required daily fluid intake.

Unresolved or Controversial Issues. None.

Basis for Proposal. Because people in wheelchairs are more likely to have bladder and kidney stones, urinary tract infections, and other problems associated with the kidneys, it is extremely important for wheelchair users to take large quantities of fluid throughout the day to dilute their urine. It is imperative that drinking fountains and water coolers be available. The requirements of this section are based upon § 1190.40 Human Data; § 1190.50 Walks, Floors, and Accessible Route; § 1190.150 Toilet and Bathing Facilities; and § 1190.170 Controls and Operating Mechanisms.

(b) *Clearances.* This section is based on paragraph 5.3: *Protruding Objects.*

(c) *Spouts.* The Board understands that the measurement provided are the most convenient for wheelchair users.

(d) *Controls.* See § 1190.170 Controls and Operating Devices.

§ 1190.170 Controls and Operating Mechanisms

(a) *General.—Scope.* This section includes controls and operating mechanisms such as thermostats, alarm pull stations, window operating devices, light switches, electrical outlets, and the like.

Minimum Number. All controls and operating mechanisms provided shall comply with § 1190.170.

Objective. To provide controls and operating mechanisms that are easily usable and safe for handicappped people.

Unresolved or Controversial Issues. None.

Basis For Proposal. This section is based on § 1190.40 Human Data and § 1190.130(h) *Closers and Opening Forces.* ANSI A117.1–1980 provides similar requirements.

(b) *Location Requirements. See* § 1190.40 Human Data.

(c) *Force. See* paragraph 1190.130(h) *Closers and Operating Forces.* The Illinois standard requires that the force needed to activate controls not exceed 3 lbf. ANSI A117.1–1980 requires 5 lbf.

(d) *Specialized Equipment.* This section permits the installation of controls that require a special location to function properly. It does not permit the use of an inaccessible location because equipment controls require fine manipulation which may be difficult for handicapped persons to use.

§ 1190.180 Alarms

(a) *General.—Scope.* Alarms include audible, visual and sensory emergency signalling systems and devices.

Minimum Number. All alarms provided shall comply with this section.

Objective. To provide prompt warning of fire and other emergencies.

Unresolved or controversial Issues. None.

Basis for proposal. Public comments, Board discussions, current standards, and research by the NBS Panel on Alarm Systems regarding Fire Safety for the Handicapped, by Wheelock Signal, Inc., and by J. K. Penry, M.D., were used in the development of this section.

(b) *Audible Alarms.* Audible alarms must have an intensity and frequency that can attract the attention of individuals who have a partial hearing loss.

(c) *Visual and other Sensory Alarms.* Public comments on visual alarm systems were mixed. The National Association of the Deaf, as well as several state and local organizations and consumers felt that flashing exit signs were an acceptable alternative for warning the hearing imparied of emergencies.

Flashing exit signs, however, were not considered appropriate by the Washington Area Group for the Hard of Hearing because this alternative assumes that exit signs are always visible. Access Design Consultants noted that flashing exit signs will alert only those people in public areas and that these flashing signs are apt to go unnoticed. The Epilephy Foundation stated that flashing exit signs, as well as strobe lights, would have an effect on significant numbers of persons with epilepsy whose seizures are triggered by flashing lights. The detrimental effect of flash rates on epileptics was also confirmed by research performed by Wheelock Signals. Inc. The firm reports:

> Of the total U.S. population, approximately 1%, or 2 million persons, suffer from epilepsy. Approximately 4% of the of the 1%, or 80,000 people, have a form called "Photosensitive" epilepsy in which seizures are triggered by flashing lights.
>
> To date, the findings indicate that the 16 flashes per second range will most likely trigger a seizure in "photosensitive" epileptics. The probability of a seizure reduces as the flash rate decreases. All

available research places the lower limit around 3 to 4 flashes per second. In very rare cases, a seizure may be triggered at a slower flash rate (below 3) but that patient will be extremely disabled and require very special care.

Dr. J. K. Penry, M.D., Chief of the Epilepsy Branch of Neurological Disorders Program, National Institute of Health, confirms that "the peak range of photosensitivity among patients suffering from epilepsy is between 4 and 16 flashes per second." He recommends that flashes or stimuli be paired and have 100 milliseconds between flashes, or in other words, they would be paired flash at 60 times per minute (Electroancephalogr Cl in Neurophysical 39:479489, 1975). It is the opinion of both Dr. Penry and of Wheelock Signals that a flash rate of 1 flash per second is high enough to command attention but below the limit where photosensitive epileptic seizure will result. Gallaudet College, for example, uses high intensity lights which flash once per second for four minutes.

Prior to permitting, or a regular basis, other types of sensory alarms, such as vibrators and variable intensity fans, the Board wishes to have additional research in order to better evaluate their effectiveness.

(d) *Pull Stations. See* § 1190.170 Controls and Operating Mechanisms of the Regulatory Analysis.

§ 1190.190 Tactile Warnings

(a) *General.—Scope.* Tactile warnings used on floor and ground surfaces including surface textures, raised strips, and recessed grooves shall comply with § 1190.190 Tactile Warnings, Informational cueing aids are not inlcuded within the scope of tactile warnings. Tactile warnings used on door hardware are included under § 1190.130 Doors.

Minimum Number. Tactile Warnings shall be provided *only* at those locations specified in paragraph 1190.31(o).

Objective. To provide a standardized system of tactile warnings on walking surfaces that can be immediately perceived by the blind or visually impaired when using the long cane technique and/or by feeling the difference in texture when walking over these surfaces.

Unresolved or Controversial Issues. (i) Tactile warnings at the top of stairs. One of the major findings of the HUD research was that tactile floor warnings of upcoming hazards were very useful for the visually impaired and blind. One of the principal applications recommended in the HUD report for tactile floor warnings was at the top of stairways located directly in a path of travel. Illinois reported however, that tactile warnings at the top of stairs have become tripping hazards in some instances. Until the Board has additional information on this subject, it proposes to reserve this paragraph for future definition.

(ii) Paragraphs 1190.31(o), 1190.70(e)(7), and 1190.190(c)(1) require tactile warnings at the edges of streets without curbs, guardrails, planted areas or similar boundary elements. Dr. Steinfeld recommends that tactile warnings be used at the intersection of pedestrain and vehicular circulation paths if the intersections of walks with streets or other boundaries between pedestrian and vehicular circulation areas are level and flush. He goes on to say that

> in the absence of a formalized use of tactile warning signals, curbs and curb ramps can be used to warn of vehicular traffic hazards in the path of travel. The problem in this case, however, is complicated by the fact that curb ramp installations have been inconsistent and, therefore, have become a hazard in and of themselves.

Should the requirement for tactile warnings include tactile warnings at curb ramps and vehicular ways; or will it cause additional problems?

Basis for Proposal. Dr. Templer's studies, research by Dr. Steinfeld, and Board discussions formed the basis for this section.

(b) *Ground and Floor Surfaces.* Dr. John Templer in his study, "Provisions for Elderly and Handicapped Pedestrians," emphasized that surfaces and textures selected for tactile warning must be easily detected and located where they provide visually impaired people immediate warning of a hazard. The HUD research studies report similar findings. Grooves must be used with caution so as not to present tripping or freezing hazards.

(c) *Hazardous Areas.* Dr. Templer's and Dr. Steinfeld's research studies report that tactile warnings on ground and floor surfaces should be used at the following locations:

(1) Transit vehicle loading platforms,

(2) Edges of streets without curbs, guardrails, planted areas, or similar boundary elements,

(3) Edges of pools not protected by guardrails, walls or curbs.

Both researchers repeatedly emphasize that tactile warnings should never be used at emergency exits.

(d) *Warnings at Stairs. See* Paragraph 1190.190(a) *General*: Unresolved and Controversial Issues, (i).

§ 1190.200 Signage

(a) *General.—Scope.* This section includes requirements for the International Symbol of Access and for informational signing. Written, symbolic, tactile, and pictorial information are within the scope of this section.

Minimum Number. The International Symbol of Accessibility as required by paragraph 1190.200(e) shall be used at all parking spaces designated as reserved for physically handicapped persons; at all passenger loading zones complying with § 1190.60; at all entrances complying with § 1190.120; and at all toilet and bathing facilities complying with § 1190.150 Entrances, toilet and bathing facilities, drinking fountains, stairs, escalators and telephones which do not comply with the minimum guidelines shall have information signing complying with § 1190.200 directing the user to accessible facilities.

Objectives. To identify readily those elements and spaces accessible to the handicapped and to provide informational signing that is easily discernable for the physically handicapped, including the blind, and the able-bodied.

Unresolved or Controversial Issues. The public is invited to share its experience with contrasting colors and specific shapes to identify particular elements and spaces. Should these provisions be mandatory in the final guidelines? *See* paragraph 1190.200(b) *Character Proportion and Contrast.*

Basis for Proposal. The decisions for this section are based on public comments to the ATBCB's Notice of Intent, Questions 25, 26, 27, and 28, and research by Dr. Steinfeld while under contract to HUD.

(b) *Character Proportion and Contrast.* This provision is similar to the ANSI A117.1–1980. Public comments in response to Questions 24–28 of the Notice of Intent supported the use of contrasting colors as a directional cue for the visually impaired. In addition to contrasting colors, the Board considered the utilization of specific shapes to identify particular elements or spaces. The research and available supporting data in this area was insufficient to mandate specific requirements at this time.

(c) *Raised or Incised Characters.* Dr. Steinfeld reports that raised characters are easier to feel than the small sizes and are not as susceptible to maintenance problems as are indented characters which can fill or be filled with dirt, gum, cleaning compounds, and the like. Because only 10 to 15 percent of the blind use braille functionally, Roman and Arabic characters are recommended so that the raised characters can be easily read. The HUD

research concludes that a character be raised to 1/32 inch. Braille is raised 0.001 inch; however, a large number of blind individuals also suffer from a loss of the sense of touch (*i.e.;* the diabetic blind and the elderly) and the extra height will provide more definition of the character.

(d) *Mounting Location and Height.* By providing a standardized location for informational signing, a visually impaired or blind person will readily be able to find the information source.

(e) *Symbol of Accessibility.* The International Symbol of Accessibility is used for the purpose of uniformity.

§ *1190.210 Telephones*

(a) *General.—Scope.* § 1190.210 Telephones includes all public telephones and related equipment provided at buildings and facilities subject to the minimum guidelines and standards (*see* § 1190.2 *Applicability*).

Minimum Number. All public telephones provided shall comply with the requirements of Subpart C—Scope and § 1190.210 *Telephones.* When a bank (*i.e.,* two or more) of public telephones is provided at a single location at a building or facility, at least one telephone per bank shall have a volume control and at least one telephone per bank shall be equipped with a TDD or with signage directing a user to a TDD that is located in proximity to the bank of telephones.

Objective. To insure public telephones are usable by the physically handicapped including people who are confined to wheelchairs, have reaching limitations, use walking aids, have dexterity or coordination difficulties, are deaf, or are hearing-impaired.

Unresolved or Controversial Issues: (1) How many telephones should be required to have amplifiers? Should the general rule be one per bank with additional requirements for special use buildings such as airports?

(ii) How many telephones should be required to be equipped with telecommunication devices for the deaf (TDD)? What is the most effective location for the TDD, an open or a controlled environment?

(iii) Should public telephones have raised or incised characters so that the blind and the visually-impaired can be provided the location and number of telephones?

(iv) Should the maximum height for the telephone be 4'–0" or 4'–6"?

Basis for Proposal. Prior to 1975, almost all standards, codes, and legislation required the highest operable part of a coin telephone to be a maximum of 4'–0" from the floor. This measurement was based on the measurement for the maximum diagonal or forward reach of a wheelchair user (*i.e.* the reach across the lap) to the telephone coin slot as specified in ANSI A117.1–1961 (R1971). Since 1975, however, the American Telephone and Telegraph Company (AT&T) has promoted the use of a maximum vertical measurement of 4'6" as the highest vertical measurement for any operable part of a telephone. AT&T based this measurement on the ANSI A117.1–1961 specification for the maximum vertical or side reach needed to operate a telephone for a wheelchair user using the side approach to the telephone. As a result of the AT&T recommendation, a number of building codes (*e.g.,* Uniform Building Code, BOCA) and several states have changed their requirements to reflect the 4'–6" measurement. The ANSI A117.1 Committee has also changed their requirement of 4'–0" that was in the 1961 standard to 4'–6" in their 1980 standard.

The 4'–6" measurement, however, does not accommodate those telephone users that have severely restricted reach ranges. The board recognizes that many persons are not able to reach higher than the 4'–0" because of the lack of truck control, spasticity, arthritis, limb amputation, and other reach limitations. The Board furthermore recognizes the critical importance of the telephone as a communication device for the handicapped as well as for others and believes that the 4'–0" measure allows more people to use the telephone. Also taken into consideration by the Board in proposing the 4'–0" requirement was the use of the telephone by children and by people with height restrictions.

The basis for the other paragraphs in this section includes the public comment to the Notice of Intent, Board discussions, and other states' standards and codes. It also reflects the specifications for telephone equipment currently available. This section is similar to the ANSI A117.1–1980 except for the paragraph on maximum height of equipment and the requirement for TDDs. ANSI does not address the latter topic.

(b) *Clear Access Space. See* § 1190.40 Human Data of the Regulatory Analysis. This paragraph is similar to the one contained in ANSI A117.1–1980.

(c) *Equipment Characteristics.* The minimum requirements of this section are based on the requirements specified in other state codes and on problems that have been identified by the handicapped user regarding the operation of telephone equipment. Requirements of this section are similar to the ANSI A117.1–1980 edition except for the requirement regarding maximum height. *See* the above paragraph, *Basis for Proposal,* for a discussion of this issue.

(d) *Equipment for the Hearing Impaired.* According to the 1972 national Census of the Deaf Population, there are 13,400,000 deaf and hearing-impaired persons in the U.S. Of these, 1,767,000 are functionally deaf and can neither hear nor unerstand speech with or without the use of hearing aids. The minimum guidelines address three types of public telephone equipment designed to eliminate communication barriers: (1) Telephone receivers which are compatible with hearing aids; (2) adjustable volume controls; and (3) telecommunication devices for the deaf (TDD).

AT&T, in response to Questions 20 and 22 of the Notice of Intent, reported that the Bell System already provides public telephones compatible with hearing aids. AT&T anticipates that, by the end of 1980, all coin telephones will be compatible with those hearing aids employing induction coils.

The National Center for the Law and the Deaf strongly urged in their comments (Notice of Intent, Question 20) that all public telephones be equipped with adjustable volume controls. The Center said that having a number or percentage of pay phones with volume controls seriously reduces their availability and accessibility to hearing-impaired persons. The Center also noted that an adjustable volume control is a minor alteration to a telephone and that this control can benefit all individuals especially when public phones are located in noisy areas.

The public support in response to Questions 20 and 21 of the Notice of Intent for TDD's to be required on public telephones was quite strong. The National Center for the Law and the Deaf observed that public telephones which are amplified or are compatible with hearing aids remain useless to those with severe or profound hearing loss; only the TDD's can benefit them. The Center reports that TDDs installed in Washington, D.C. and Indianapolis have worked well for the deaf. California legislation requires the Public Utilities Commission to provide TDDs to deaf consumers free of charge. It is also the Board's understanding that the Social Security Administration is instituting a toll fee central number for deaf consumers and that the U.S. Postal Service has installed TDDs in several of its post offices.

The AT&T expressed "great concern" over any requirement for public phones to have TDDs. The Corporation's concern was threefold:

(1) There is no available teletypewriter device durable enough for "a true public environment."

(2) There is no available TDD that can be used with both BAUDOT and ASCII codes to make the TDD useful either commercially, industrially, or domestically; and

(3) There is no available evidence to show that enough deaf persons would use the TDD to justify its expense.

§ 1190.220 Seating, Tables, and Work Surfaces

(a) *General.—Scope.* § 1190.220 Seating, Tables, and Work Surfaces includes all fixed or built-in seating, tables, or work surface.

Minimum Number. Five percent of each element provided shall comply with § 1190.220 Seating, Tables, and Work Surfaces.

Objective. To insure that wheelchair users and people with walking aids have access to the elements provided.

Unresolved or Controversial Issues. Is 5 percent of the total fixed or built-in seating, tables, and work surfaces a reasonable and adequate percentage of these elements to be required?

Basis for Proposal. The majority of public comments received in response to Question 9 of the Notice of Intent replied that the minimum guidelines should require a reasonable number or appropriate number and specify the minimum number. The state codes use various requirements in setting a minimum number including: "at least one," "2 percent," "5 percent," and "all." In light of the Board discussions, the 5 percent figure was chosen.

(b) *Clearances. See* § 1190.40 Human Data, § 1190.150(b)(5) Lavatories and Sinks, § 1190.160 Drinking Fountains and Water Coolers. This paragraph is similar to the one contained in ANSI A117.1–1980.

§ 1190.230 Assembly Areas

(a) *General.—Scope.* § 1190.230 Assembly Areas includes all places of assembly with fixed type seating and all other elements and spaces required for the use of the assembly area including, but not limited to, stages and backstage areas, lobbies, ticket offices, seating, dressing rooms, toilet rooms, and bathing facilities.

Minimum Number. All assembly areas provided shall comply with the requirements of Subpart C—Scope and § 1190.230 Assembly Areas.

Objective. To insure that a minimum number of spaces in assembly areas are accessible and convenient to use by people who are confined to wheelchairs, use walking aids, or have a severe loss of hearing.

Unresolved or Controversial Issues. Under § 1190.31(S) a limited number of viewing positions are to be provided based on the capacity of the assembly area. Public comment is sought on the reasonableness and adequacy of this provision.

Basis for Proposal. In most auditoria or assembly areas, no provision is made for wheelchair users. Generally the only available space for the wheelchair is the aisle which is usually sloped and viewing is not always optimal. Frequently, wheelchair users are denied entrance because the only available location for the wheelchair to occupy blocks fire exits. The minimum number of viewing positions is based on a review of various codes. BOCA, SBCC, Rhode Island, and New Jersey provide a similar table to the one listed in Subpart C—Scope. The Board also recognizes that many handicapped persons attend performances with able-bodied friends and relatives as well as disabled ones; therefore, provisions should be made so that seating can be together.

(b) *Size and Location of Viewing Positions. See* § 1190.40 Human Data. So that the handicapped viewer can have a choice as to his or her viewing position and/or price of ticket, if applicable, the Board proposes that viewing positions be dispersed. This requirement is similar to that of ANSI A117.1–1980.

(c) *Performing Areas.* This section is similar to the provisions of ANSI A117.1–1980 except that the Board recognizes that existing performing areas may be structurally impracticable to alter and therefore the guidelines provide an exception.

(d) *Listening Systems.* In response to Question 23 of the Notice of Intent, a number of people suggested the use of the audio loops and interpreters. The consensus was that technology to meet the communication needs of the hearing impaired was available; however, it is not widely used.

§ 1190.240 Storage

(a) *General.—Scope.* Includes all storage features provided in a building or facility. Cabinets, shelves, closets, and drawers are included within the scope of this section.

Minimum Requirements. All storage facilities provided except those specifically exempted from this requirement by Subpart E—Special Technical Provisions, shall comply with this section.

Objective. To provide storage facilities that can be safely and conveniently used by people confined to wheelchairs, who have reaching limitations, who use walking aids, or who lack stamina or coordination.

Unresolved or Controversial Issues. None.

Basis for Proposal. Requirements are based on § 1190.40 Human Data, § 1190.50: Walks, Floors, Accessible Routes, and § 1190.170 Controls and Operating Mechanisms. This paragraph is similar to the provisions contained in ANSI A117.1–1980.

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